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ABSTRACT

This study, carried out in 1959-60 in the public schools of three counties in southeastern Florida, compares the teaching effectiveness of beginning teachers who are provisionally certified because of lack of all or some of the prescribed professional preparation in education courses with teachers who have met full certification requirements. Seventy-six provisionally certified teachers were paired with 76 fully certified teachers, matched as closely as possible on a number of background variables. Systematic and repeated classroom observations were used to estimate teaching effectiveness, with each teacher observed five times during the year. Each teacher was also rated twice by his principal. The original item ratings from the Classroom Observation Report were converted into standard scores, which, in turn were averaged to give five subscores which formed the basic data for analysis. The comparisons overwhelmingly favored the teachers who had completed the professional sequence of education courses, and the differences were statistically significant in all but one of the group comparisons made. In view of the conclusion that completion of education courses is reflected in more effective teaching, at least during the first year, the implication is that education courses have a legitimate place in the required program of teacher preparation. (MBM)

ED052156

# Professional Preparation and Effectiveness of Beginning Teachers

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The cooperation of a great many people, more than can be named individually, has been necessary to make this study possible. The personnel departments in the Dade, Broward, and Monroe County public school systems were most helpful in making possible a search of the employment records for beginning teachers eligible for the study. The staff in the Certification Section of the Florida State Department of Education made the official training and other certification records of the teachers involved available for study. The principals of the schools in which the beginning teachers were employed were most cooperative in arranging for the classroom visitations and in taking time to contribute to the study their own estimates of the effectiveness of the beginning teachers.

But most of all the study depended upon the cooperation of the beginning teachers themselves. A total of more than 800 classroom visitations was made during the course of the study. Despite the tensions and anxieties that sometimes characterize the first year of teaching, the observers from the study were, without exception, graciously received and made welcome in the classroom by these beginning teachers.

I am especially indebted to a group of my colleagues at the University of Miami, listed on the opposite page, who acted as an advisory committee to me throughout the study and who participated directly in the training sessions for the classroom observers. I am additionally indebted to Dr. Mouly for a critical reading of this report. Mr. Harry O. Hall was efficient and resourceful as administrative assistant during the data collecting period of the study.

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Coral Gables, December 1960 J. R. B.

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# Professional Preparation
and
# Effectiveness of Beginning Teachers

*Chapter 1*

# THE PROBLEM

Of the many problems facing modern education, and particularly facing the school administrator, none is of greater importance than that of staffing the classrooms with good teachers. In the selection of teachers the question of adequate preparation is one of great significance. The question of the nature of appropriate preparation for the teacher's responsibilities has received considerable attention. But unfortunately, and for many reasons, most of the discussions of this question have been based on opinions rather than on objectively established facts. Difficult as it is to carry out, there is need for more research to provide such facts. The present investigation is an attempt to do just this with respect to a practical question about the teacher's preparation.

The purpose of this study was to compare the teaching effectiveness of beginning teachers who are provisionally certified because of lack of all or some of the prescribed professional preparation in education courses with the teaching effectiveness of beginning teachers who have met full certification requirements including the prescribed sequence of education courses.

## *BACKGROUND OF THE PROBLEM*

The critical shortage of teachers, which developed during the war period and became intensified in the post war period in which there has been such a dramatic increase in school age population, is so well known as not to require discussion here. In order to get someone in the classrooms practically all of the states have resorted to the issuance of emergency teaching credentials to people who have not met the prescribed program of preparation.

For example, in Florida the Provisional Graduate Certificate has been issued to any college graduate, regardless of his undergraduate program, who met the technical requirements of age, citizenship, character reference, and health. This certificate is good for three years and gives the holder during that period the same legal license to teach as does the Graduate Certificate issued to those who have met

full certification requirements. At the end of the three-year period the provisionally certified teacher is expected to have made a start on meeting a reduced set of certification requirements.

With the large number of teachers with emergency certificates in the schools, sometimes estimated to be as high as 20% for the nation as a whole, the question of the effectiveness of these teachers became and remains one of considerable importance. Are the teachers with emergency certificates doing as well as those with full certification? If they are, could the schools not go a long way toward solving the teacher shortage by eliminating the requirements of specialized preparation so that any college graduate of good character could be licensed to teach?

Ever since special preparation requirements for teachers were first established there has been discussion as to whether they were really necessary. Some writers have advocated changes in the relative emphasis in the college program, more work in liberal arts courses and less in education courses, or vice versa. Some have advocated the postponement of any professional training in education until after the completion of the bachelor's degree work. And a few have taken the position that no professional education courses should be required of the beginning teacher at all and that any necessary work of such nature should be provided through an in-service training program during the first few years of teaching.

And so from a practical point of view – that of hiring increasing numbers of teachers to put in the classrooms required by the expanding school population – and from a theoretical point of view – that of the appropriate nature of the college programs for prospective teachers – there is need to know as much as possible about the relative effectiveness of the contrasting programs of preparation. What evidence is there that better teaching results from a professional program than would result if the future teacher completed college and entered teaching without any course work in professional education?

It would be interesting to be able to take a fairly large number of high school graduates who were planning to become teachers, divide them into two groups with approximately equal distribution of measurable abilities, put one group through a current program of teacher preparation with the other group taking the ordinary BA or BS programs without organized teacher preparation, and then compare

their teaching success during, say, the first, third, and fifth years after graduation. Although this would be interesting, it is not very feasible because of the time involved, changes in vocational plans, certification complications, employment uncertainties, etc.

The recent situation with respect to emergency certificated teachers, while not exactly parallel to that just described, is sufficiently similar to warrant a start toward getting an answer. As a result of the teacher shortage and the relaxation of certification requirements, beginning teachers with quite different backgrounds have been working side by side. Some have met full certification requirements, including the prescribed sequence of education courses, some have met part of the certification requirements, and some have met none of the certification requirements in professional education. How do they compare in teaching effectiveness?

### *STATEMENT OF THE PROBLEM*

Consideration of many factors, including those of time and resources, impose many limitations, including geographic ones, on an investigation such as this. Of course it is hoped that the results will have implications that apply beyond the local area in which the investigation was carried on. Nevertheless the investigation had to be carried out with available teachers in available schools.

The specific question which this study was designed to answer may be stated as follows:

> *With respect to beginning white teachers in southeastern Florida, is there a difference in teaching effectiveness, as judged by competent observers, between those who have met full certification requirements and those who are on emergency certificates because of lack of part or all of the required courses in education?*

There are two major procedural problems in an investigation such as this. The first is how to isolate the experimental factor, i.e., how to get groups substantially equal in all important factors other than having or not having followed the prescribed program of teacher preparation. This will be considered in Chapter II. The second major problem is that of the criterion, i.e., how to judge teaching effectiveness. The procedures followed with respect to this will be described in Chapter III.

*Chapter II*

## THE SAMPLE OF BEGINNING TEACHERS STUDIED

Dade County is in the center of the fast growing "Gold Coast" of southeastern Florida. During the school year of 1959-60 in which this study was carried out Dade County had a population of nearly a million people. The public school system had an average daily membership of 154,887 pupils and employed 6,703 teachers and administrative and supervisory personnel. Dade County was the main source of beginning teachers for this study, but, in order to have as large a sample as possible, teachers from the adjoining counties of Broward and Monroe were also included.

A list of newly hired teachers in each county was secured, and, from an examination of the individual personnel folders, teachers with previous teaching experience in other counties or states were identified and eliminated from the lists. A residue of 312 white first year teachers from Dade County, 85 from Broward County, and 22 from Monroe County were left to give a pool of 419 teachers from which the subjects for inclusion in the study were drawn.

Data were assembled from the official records in the county personnel offices and from the certification records in the State Department of Education at Tallahassee. Records in the latter office included official transcripts on all college work completed at the time of application for a certificate.

### *BACKGROUND DATA COLLECTED*

Insofar as they were available, the following data were assembled for each teacher:

1. Sex.
2. Year of birth.
3. Highest degree held.
4. Undergraduate college.
5. Year bachelor's degree was awarded.

6. Over-all quality point average (QPA). The total quality points earned were divided by the total credits attempted with A = 3, B = 2, C = 1, D & F = 0.
7. Undergraduate major. Elementary education courses were classified here for elementary teachers.
8. Teaching assignment.
9. Type of certificate.
10. Rank of certificate.
11. Teaching major, as indicated on the teaching certificate.
12. Total credits in the teaching major.
13. Deficiencies in the teaching major, if any.
14. Quality point average in the teaching major.
15. Total credits in professional education courses. This included such courses as history and philosophy of education, educational psychology, general methods, principles of elementary or secondary education, special methods in the teaching major (or in reading for elementary teachers), and student teaching. For those preparing for elementary teaching such courses as content and methods in art, in music, in science, etc., were not classified here but rather under the undergraduate major.
16. Deficiencies in required professional courses, if any.
17. Quality point average in the professional education courses.
18. Decile rank on the Purdue Teacher's Examination: How I Teach. The test is routinely administered as part of the application procedures in Dade County. Scores on this test were not available for the teachers from Broward and Monroe Counties.
19. Total score on an interview rating form. Each candidate for a teaching position in Dade County is required to have an interview with a staff member from the central personnel office. The candidate is rated from a high of one to a low of five on each of 16 listed traits. Although no arithmetical summary of the interview ratings is made in the personnel office, for the purposes of this investigation values from one to five were assigned to each of the ratings and a total arrived at by simple addition. The best possible score would be 16 (all one's) and the worst possible score 80 (all five's). These interview scores were available for Dade County teachers only.

### *PAIRING PROCEDURES*

When these background and certification data were all assembled,

a master sheet was prepared for each school which employed one or more of the possible subjects in the study on which the basic background data for each teacher (with the exception of name) were listed. Then, without knowledge of the identity of the teachers involved, an attempt was made to match with each teacher having none of the professional sequence an otherwise similar teacher having the full professional sequence.

The first matching factor considered was the teaching assignment, e.g., an English teacher was matched with an English teacher, or a teacher of the primary grades matched with another teacher of the primary grades. Other factors considered were sex, age, over-all quality point average, college major, and the school from which the bachelor's degree was received. Where possible, the provisionally certified teacher was paired with a fully certified teacher assigned to the same school.

It soon became apparent that exact matching would not be possible. In the first place, most of the schools had only one, two, or three possible subjects. Seven was the highest number of teachers included in the study from any one school. In the second place, the relatively large number of variables in relation to the rather small number of teachers involved made exact matching on all the variables impossible. However, it was considered important to include every provisionally certified teacher whether or not an exact match could be found among the fully certified group. It was hoped that the unavoidable mismatching on some variables for some individual pairs would tend to be in opposite directions from pair to pair and would cancel out in the groupings of the pairs.

After each of the teachers with none of the professional sequence in education courses was paired with as close a match as could be found among the teachers with the full professional sequence, a similar pairing process was followed for the provisionally certified teachers who had completed some but not all of the prescribed professional sequence.

The final grouping of teachers for the study is presented in Table 1. These figures represent the net group at the end of the study.[1] It will

[1] During the course of the year, two of the fully prepared teachers left on maternity leave and one left because he had originally been hired to fill a one-semester vacancy. Three provisionally certified teachers also had to be

*Table 1*

**TEACHER PAIRS IN STUDY OF BEGINNING TEACHERS**
**by Teaching Level and Professional Preparation**

| Teaching Level | Professional Preparation | | Total No. of Pairs |
|---|---|---|---|
| | None | Some | |
| Elementary | 15 | 21 | 36 |
| Secondary | 19 | 21 | 40 |
| Elementary and Secondary | 34 | 42 | 76 |

be noted that the numbers in Table 1 refer to *pairs of teachers* rather than to individual teachers. This procedure is followed in many of the tables in this report. The group designation of a pair of teachers is "None","Some", or "Full" according to the amount of the professional sequence in education courses completed by the provisionally certified member of the pair. In each case, the second member of the pair had completed the full sequence of professional education and was fully certified.

### *A NOTE ON TERMINOLOGY*

Frequently throughout this report it is necessary to refer to "teachers who have met all of the certification requirements except that they have had none of the prescribed sequence of education courses" and to "teachers who have met all of the certification requirements except that they have had one or more education courses but have not completed the full sequence of professional courses". In the interest of brevity, these teachers are sometimes referred to as having "None" or "Some" of the professional preparation.

It should be borne in mind that these phrases refer to the teacher's being unprepared or partially prepared with respect to *the prescribed sequence of education courses*. In no way is this phraseology meant to imply a lack of concern for other vital areas of teacher preparation, including general preparation in basic liberal arts courses and a strong sequence of courses in the teaching major. It is assumed that all the teachers have met these latter two basic requirements, and inasmuch as this study is primarily concerned with the presence or absence in

dropped from the study. One was discovered to have had previous teaching experience, one was granted maternity leave, and one was fired for inefficiency.

the teacher's preparation of the education courses prescribed for certification, the shortened terminology is used.

Teachers with none of the professional sequence and those with only part of it were teaching under Provisional Certificates. It should be noted that none of the provisionally certified teachers had had student teaching. If a provisionally certified teacher had completed a single course in the professional sequence, he was classified as having some of the sequence. Thus, all of the teachers in the unprepared or "None" group lacked the full 20 credits in the professional sequence prescribed by the State as a minimum for full certification. Many of the teachers classified as partially prepared or "Some" had completed only one course in the professional sequence, frequently Introduction to Education or Educational, Child or Adolescent Psychology.

The phrase "pair difference" refers to the score of the provisionally certified teacher of a pair on a given variable minus the score of the fully certified teacher of the pair on that same variable. Thus when pair differences are reported, positive values reflect higher scores by the provisionally certified, negative values reflect higher scores by the fully certified.

### *GROUP COMPARISONS ON BACKGROUND VARIABLES*

The various groupings of teachers were compared on certain of the background variables to check the success of the attempts at matching.

#### *Quality Point Average*

From the official transcripts on file in the State Department of Education, the over-all quality point average for each of the teachers was determined. This average was figured by dividing the total number of quality points earned by the total number of credits attempted on the basis of three quality points for each credit of A work, two for B, one for C, and zero for D or E. The group results are presented in Table 2.

With respect to this variable the matching was quite satisfactory in that none of the mean pair differences was significantly different from zero. Whatever group differences in the experimental variable do show up in later analyses can not be attributed to differences in the over-all quality point average since its influence has been satis-

*Table 2*

**OVER-ALL QUALITY POINT AVERAGE**

**76 Pairs of Beginning Teachers, by Teaching Level and Professional Preparation**

| Teaching Level and Professional Preparation | N | Certification Status: Provisional M | Provisional SD | Full M | Full SD | Pair Differences: M | SE | t |
|---|---|---|---|---|---|---|---|---|
| **Elementary** | | | | | | | | |
| None | 15 | 1.43 | 0.34 | 1.41 | 0.37 | 0.01 | 0.03 | 0.50 |
| Some | 21 | 1.47 | 0.33 | 1.46 | 0.33 | 0.01 | 0.05 | 0.19 |
| None or Some | 36 | 1.45 | 0.34 | 1.44 | 0.35 | 0.01 | 0.03 | 0.36 |
| **Secondary** | | | | | | | | |
| None | 19 | 1.56 | 0.55 | 1.71 | 0.44 | –0.15 | 0.14 | –1.08 |
| Some | 21 | 1.75 | 0.48 | 1.77 | 0.48 | –0.01 | 0.07 | –0.18 |
| None or Some | 40 | 1.66 | 0.52 | 1.74 | 0.46 | –0.08 | 0.07 | –1.03 |
| **Elementary and Secondary** | | | | | | | | |
| None | 34 | 1.50 | 0.47 | 1.58 | 0.44 | –0.08 | 0.08 | –0.97 |
| Some | 42 | 1.61 | 0.43 | 1.61 | 0.44 | 0.00 | 0.04 | 0.02 |
| None or Some | 76 | 1.56 | 0.45 | 1.60 | 0.44 | –0.03 | 0.04 | –0.82 |

factorily divided between the provisionally and fully certified teachers.

It might be noted in connection with this variable, and for the others also, that the averages presented are not necessarily typical of beginning teachers. Each variable is controlled by the scores of the group of provisionally certified teachers. Fully certified teachers were chosen so that their background data matched as closely as possible those of the provisionally certified group and without regard to how representative they might be of the general group of fully certified beginning teachers.

*Credits in Teaching Major*

Another factor which on *a priori* grounds would seem to be related to teaching success was the amount of work the teacher had completed in his teaching major. Data for comparisons of the various groups on this variable are presented in Table 3.

None of the provisionally certified elementary teachers had completed any substantial part of the elementary major. They were provisionally certified in the high school subject nearest to their academic

*Table 3*

**CREDITS EARNED IN CERTIFICATION MAJOR**
**76 Pairs of Beginning Teachers, by Teaching Level and Professional Preparation**

| Teaching Level and Professional Preparation | N | Certification Status: Provisional M | Provisional SD | Full M | Full SD | Pair Differences: M | SE | t |
|---|---|---|---|---|---|---|---|---|
| **Elementary** | | | | | | | | |
| None | 15 | 37.47 | 19.66 | 27.20 | 2.95 | 10.27 | 5.62 | 1.83 |
| Some | 21 | 39.90 | 17.26 | 30.38 | 7.93 | 9.52 | 4.26 | 2.24* |
| None or Some | 36 | 38.89 | 18.33 | 29.06 | 6.53 | 9.83 | 3.36 | 2.92** |
| **Secondary** | | | | | | | | |
| None | 19 | 42.79 | 18.90 | 33.05 | 12.35 | 9.74 | 5.34 | 1.82 |
| Some | 21 | 40.38 | 16.27 | 35.76 | 12.61 | 4.62 | 3.34 | 1.38 |
| None or Some | 40 | 41.53 | 17.60 | 34.48 | 12.55 | 7.05 | 3.07 | 2.30* |
| **Elementary and Secondary** | | | | | | | | |
| None | 34 | 40.44 | 19.42 | 30.47 | 9.87 | 9.97 | 3.82 | 2.61* |
| Some | 42 | 40.14 | 16.77 | 33.07 | 10.87 | 7.07 | 2.70 | 2.62* |
| None or Some | 76 | 40.28 | 18.00 | 31.91 | 10.51 | 8.37 | 2.26 | 3.71** |

**NOTE:** In this and subsequent tables in this report, the symbol ** indicates significance at the 1% level of confidence; the symbol *, significance at the 5% level.

major in college and were teaching "out of field" in the elementary grades. Their teaching major, or more precisely their certification major, might be sociology or English or French. For this reason, no matching was attempted for the elementary groups on teaching major. However, the mean pair differences are reported for the subgroups of elementary teachers for the sake of completeness even though the comparisons are probably not appropriate. The figures may be of some interest in comparing the number of credits included in the elementary teaching major with the number of credits in academic majors of those who had not followed a teacher preparatory program in college. On the average, the number of credits in the academic major was about ten more than the number of credits in the teaching major in elementary education.

The provisionally certified and fully certified elementary teachers then differ not only with respect to the basic sequence of professional education courses but also with respect to the teaching major in elementary education.

In general, the secondary teachers who were provisionally certified had completed more credits in their teaching majors than had the

fully certified teachers. For the "None" and "Some" groups the mean pair differences were not large enough to be statistically significant. When the two groups were combined the mean pair difference of 7.05 credits in favor of the provisionally certified teachers was significant at the 5% level.

*Age of Beginning Teachers*

The average ages of the beginning teachers studied are presented in Table 4 in groupings by teaching level and certification status. A

*Table 4*

**AGE IN YEARS**

**76 Pairs of Beginning Teachers, by Teaching Level and Professional Preparation**

| Teaching Level and Professional Preparation | N | Certification Status: Provisional M | Provisional SD | Full M | Full SD | Pair Differences: M | SE | t |
|---|---|---|---|---|---|---|---|---|
| **Elementary** | | | | | | | | |
| None | 15 | 28.07 | 4.35 | 28.00 | 7.43 | 0.07 | 1.47 | 0.05 |
| Some | 21 | 28.67 | 6.39 | 23.38 | 2.39 | 5.29 | 1.32 | 4.02** |
| None or Some | 36 | 28.42 | 5.64 | 25.31 | 5.63 | 3.11 | 1.06 | 2.93** |
| **Secondary** | | | | | | | | |
| None | 19 | 27.05 | 3.75 | 26.68 | 7.27 | 0.37 | 1.69 | 0.22 |
| Some | 21 | 29.48 | 7.37 | 24.76 | 5.14 | 4.71 | 1.63 | 2.90** |
| None or Some | 40 | 28.32 | 6.04 | 25.67 | 6.31 | 2.65 | 1.21 | 2.20* |
| **Elementary and Secondary** | | | | | | | | |
| None | 34 | 27.50 | 4.06 | 27.26 | 7.36 | 0.24 | 1.13 | 0.21 |
| Some | 42 | 29.07 | 6.90 | 24.07 | 4.07 | 5.00 | 1.03 | 4.84** |
| None or Some | 76 | 28.37 | 5.86 | 25.50 | 6.00 | 2.87 | 0.80 | 3.57** |

more detailed report on ages, including frequency distributions for the various subgroups, is presented in Table 18 in Appendix A. The "age" reported in these tables is the figure obtained by subtracting the year of birth from 1959.

It will be noted from Table 4 that the pairs involving teachers with none of the professional sequence were well matched, with only negligible differences in age being present in both the elementary and secondary groups. However, no such closeness in matching with respect to age prevailed for the pairs involving teachers with partial professional preparation. At the elementary level, the teachers with

partial professional preparation were on the average 5.29 years older than the fully prepared teachers with whom they were matched. At the secondary level the mean pair difference in age was 4.71 years. For both these groups, and for the combined elementary and secondary groups, the differences in age were statistically significant.

The difference in age between the teachers partially prepared with respect to education courses and the fully prepared teachers paired with them was much greater than the difference in age between the teachers unprepared with respect to education courses and their fully prepared counterparts. Although this difference may be partially the result of the provisionally certified teachers with some education courses being slightly older (1.57 years on the average) than the provisionally certified teachers with no education courses, it is more a function of the sequence in which the matching was done. The teachers with no education courses were matched first and when the time came for matching the teachers with some of the professional sequence there were not enough older teachers left in the pool of fully prepared teachers to go around. Whatever the reason, the fact remains that the matching on age was not very close for the groups of pairs involving partially prepared teachers, and these differences had to be taken into account when the comparative effectiveness of these groups was considered in Chapter V.

*Recency of Graduation*

Matching the teachers on year of college graduation proved to be even more of a problem than matching on age. The time in years since graduation was obtained by subtracting the year in which the bachelor's degree was received from 1959. The averages for the several groups are summarized in Table 5. These data, along with frequency distributions, are presented in more detail in Table 19 in Appendix A. It should be noted that the variable here is the length of time since college graduation and not necessarily the length of time since the last college work was taken.

For the "None" group at the secondary level the matching was fairly successful, with the mean pair difference being 1.21 years. For the "Some" group at the secondary level and for both the "None" and "Some" groups at the elementary level, the mean pair differences were

*Table 5*

**TIME IN YEARS SINCE COLLEGE GRADUATION**
**76 Pairs of Beginning Teachers, by Teaching Level and Professional Preparation**

| Teaching Level and Professional Preparation | N | Certification Status: Provisional M | Provisional SD | Full M | Full SD | Pair Differences: M | SE | t |
|---|---|---|---|---|---|---|---|---|
| **Elementary** | | | | | | | | |
| None | 15 | 4.67 | 3.52 | 0.07 | 0.50 | 4.60 | 0.95 | 4.86** |
| Some | 21 | 4.57 | 5.75 | 0.05 | 0.42 | 4.52 | 1.30 | 3.49** |
| None or Some | 36 | 4.62 | 4.94 | 0.06 | 0.56 | 4.56 | 0.84 | 5.42** |
| **Secondary** | | | | | | | | |
| None | 19 | 3.63 | 3.86 | 2.42 | 6.60 | 1.21 | 1.49 | 0.81 |
| Some | 21 | 4.76 | 7.92 | 0.62 | 1.69 | 4.14 | 1.55 | 2.67* |
| None or Some | 40 | 4.22 | 6.34 | 1.47 | 4.77 | 2.75 | 1.09 | 2.52* |
| **Elementary and Secondary** | | | | | | | | |
| None | 34 | 4.09 | 3.76 | 1.38 | 5.06 | 2.71 | 0.96 | 2.81** |
| Some | 42 | 4.67 | 6.94 | 0.33 | 1.14 | 4.33 | 1.00 | 4.33** |
| None or Some | 76 | 4.41 | 5.75 | 0.80 | 3.53 | 3.61 | 0.70 | 5.14** |

significantly different from zero.[2] The fully certified teachers were primarily people who had just finished college, while the provisionally certified teachers frequently had been out of college for a number of years. These differences are discussed further in Chapter V.

The 152 teachers in the study included graduates from 69 different colleges and universities throughout the country. The distribution of the teachers by certification status and location of the institution granting the bachelor's degree was as follows:

| *Institution or Location* | *Certification Status: Provisional* | *Full* | *Total* |
|---|---|---|---|
| University of Miami | 20 | 33 | 53 |
| Other institutions in Florida | 12 | 20 | 32 |
| Institutions outside Florida | 44 | 23 | 67 |
| Total | 76 | 76 | 152 |

[2] It should be noted that the use of the t-ratio is not entirely correct here. The t-ratio is based on the assumption of approximately equal variances within the groups being compared. The groups of fully certified elementary teachers have a very low variance in comparison with that in the matching groups of unprepared and partially prepared elementary teachers. In each fully certified group, all but one of the teachers started teaching the first year out of college and in both groups the exception started the second year out of college. Nevertheless, an inspection of the distributions of this variable in Table 19 in Appendix A clearly indicates that a real difference does exist.

*Other Background Factors*

The various subgroups were also compared on the mean quality point average in the certification major (the teaching field which appeared on the teaching certificate). No significant differences were found. The mean interview scores for the 67 pairs of teachers from Dade County were also compared in each of the groups. Again no significant mean pair differences were found. The group data with respect to these variables are presented in Table 20 and 21 in Appendix A. Data on the sex of the teachers in the groups are presented in Table 28.

The How I Teach test attempts to measure the teacher's "knowledge of the psychological nature of the children". Since this knowledge is one of the specific objectives of the professional sequence of education courses, the scores on this test were not considered an appropriate matching factor as their use would tend to blur the very distinction the pairing process was trying to preserve: the presence or absence of the sequence of education courses (and the direct outcomes of such courses). As might be expected, the fully prepared teachers, especially the elementary teachers, scored higher than the matching teachers with none or only some of the professional sequence. The mean scores (in terms of decile ranks) of the various groups are presented in Table 22 in Appendix A.

## *SUMMARY*

From a pool of 419 beginning teachers in three counties in southeastern Florida in the Fall of 1959, 76 pairs of teachers were selected as the sample for the study. In each pair one teacher was provisionally certified, because of having completed either none or only some of the professional sequence of education courses, and the other teacher was fully certified, because of having completed the full sequence of education courses. Insofar as possible, the teachers making up a pair were matched on a number of background variables. The general matching was considered to be reasonably satisfactory with respect to the background factors of over-all quality point average, number of credits in the certification subject, and employment interview scores. Caution was indicated with respect to the factors of age and recency of graduation.

*Chapter III*

## ESTIMATING TEACHING EFFECTIVENESS

Time and space will not be taken here for a general discussion of the problems involved in judging teaching success or for a general review of the literature in this field. Such discussions and reviews are readily available elsewhere.[1] Suffice it to say here that one of the major barriers to experimental research in the field of teacher education has been the lack of satisfactory criterion measures of teaching success.

One approach to the problem of estimating teaching effectiveness is in terms of gains in test scores made by the pupils taught. When properly applied, such testing can give useful information about at least one phase of teaching success. However, when official approval was given for work with the public school systems on the present study it was based on the investigations not involving any special testing since the school officials felt their pupils' schedules were already filled with enough testing. Unfortunately none of the extant testing programs seemed to fit into the framework of the present study.

Another approach to judging teaching effectiveness has been through ratings by principals or through classroom observations. A number of attempts have been made to increase the reliability of classroom estimates of effectiveness by the use of guides to classroom observations and various types of rating sheets. The procedure for estimating teaching effectiveness selected as most appropriate and feasible for the present study was to have such estimates made by competent observers on the basis of systematic and repeated classroom observations.

### *THE EVALUATIVE INSTRUMENT*

When this study was being planned and various types of instruments to aid in the classroom observations were being considered, the

[1] In particular, see David G. Ryans, *Characteristics of Teachers*, especially Chapters 1, 2 and 4. Washington: American Council on Education, 1960. See also the summaries on "Teacher Effectiveness" and "Prediction of Teacher Effectiveness" in *Encyclopedia of Educational Research* (Third Edition). New York: The Macmillan Company, 1960.

Teacher Characteristics Study was drawing to its close and the report was being prepared.[2] This major study was conducted over a period of six years by Ryans and his associates for the American Council on Education with financial support from the Grant Foundation. A great deal of painstaking research had gone into the development of a *Classroom Observation Record* and the identification of three major patterns of teacher classroom behavior. It was decided to try to build on the very fine work done by the Ryans group.[3] *The Classroom Observation Record* is based on three major dimensions or patterns of teacher classroom behavior.[4] Each of these patterns is made up of a number of items on which the observer rates the teacher on a seven-point scale. Each item is accompanied by examples considered to represent opposite poles of that particular teacher behavior continuum. For example, the item on apathetic-alert teacher behavior is presented as follows:

*12. APATHETIC–ALERT TEACHER BEHAVIOR*

| *Apathetic* | *Alert* |
|---|---|
| 1. Seemed listless; languid; lacked enthusiasm. | 1. Appeared buoyant; wide-awake; enthusiastic about activity of the moment. |
| 2. Seemed bored by pupils. | 2. Kept constructively busy. |
| 3. Passive in response to pupils. | 3. Gave attention to, and seemed interested in, what was going on in class. |
| 4. Seemed preoccupied. | 4. Prompt "to pick" up class when pupils' attention showed signs of lagging. |
| 5. Attention seemed to wander. | |
| 6. Sat in chair most of time; took no active part in class activities. | |

[2] The report has since been published. David G. Ryans, *Characteristics of Teachers.* Washington: American Council on Education, 1960.

[3] Permission was sought, and readily granted, for the use in the present investigation of an adaptation of the assessment blank developed in the Teacher Characteristics Study.

[4] Ryans, *op. cit.*, Chapter 4.

The three major clusters or patterns of teacher classroom behavior, along with a brief designation of the behavior continuums making them up, are presented below: [5]

Subscore X: understanding, friendly *vs.* aloof, egocentric, restricted teacher behavior.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 5. | Partial | 1 | 2 | 3 | 4 | 5 | 6 | 7 | N | Fair |
| 6. | Autocratic | 1 | 2 | 3 | 4 | 5 | 6 | 7 | N | Democratic |
| 7. | Aloof | 1 | 2 | 3 | 4 | 5 | 6 | 7 | N | Responsive |
| 8. | Restricted | 1 | 2 | 3 | 4 | 5 | 6 | 7 | N | Understanding |
| 9. | Harsh | 1 | 2 | 3 | 4 | 5 | 6 | 7 | N | Kindly |
| 16. | Excitable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | N | Poised |
| 20. | Pessimistic | 1 | 2 | 3 | 4 | 5 | 6 | 7 | N | Optimistic |

Subscore Y: responsible, businesslike, systematic *vs.* evading, unplanned, slipshod teacher behavior.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 2. | Obstructive | 1 | 2 | 3 | 4 | 5 | 6 | 7 | N | Responsible (Pupil Behavior) |
| 14. | Evading | 1 | 2 | 3 | 4 | 5 | 6 | 7 | N | Responsible |
| 15. | Erratic | 1 | 2 | 3 | 4 | 5 | 6 | 7 | N | Steady |
| 17. | Uncertain | 1 | 2 | 3 | 4 | 5 | 6 | 7 | N | Confident |
| 18. | Disorganized | 1 | 2 | 3 | 4 | 5 | 6 | 7 | N | Systematic |
| 21. | Immature | 1 | 2 | 3 | 4 | 5 | 6 | 7 | N | Integrated |

Subscore Z: stimulating, imaginative, surgent or enthusiastic *vs.* dull, routine teacher behavior

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. | Apathetic | 1 | 2 | 3 | 4 | 5 | 6 | 7 | N | Alert (Pupil Behavior) |
| 4. | Dependent | 1 | 2 | 3 | 4 | 5 | 6 | 7 | N | Initiating (Pupil Behavior) |
| 10. | Dull | 1 | 2 | 3 | 4 | 5 | 6 | 7 | N | Stimulating |
| 11. | Stereotyped | 1 | 2 | 3 | 4 | 5 | 6 | 7 | N | Original |
| 19. | Inflexible | 1 | 2 | 3 | 4 | 5 | 6 | 7 | N | Adaptable |

[5] The patterns listed here and used in the present study for both elementary and secondary teachers are the preliminary ones developed in the Teacher Characteristics Study. The final TCS Patterns involved slightly fewer components with some differences for elementary and secondary teachers. TCS Pattern Xo: 6, 7, 8, 9, 20 for elementary teachers and the same for secondary teachers; TCS Pattern Yo: 2, 14, 15, 16, 18 for elementary teachers and 14 18 for secondary teachers; TCS Pattern Zo: 10, 11 for elementary teachers and the same for secondary teachers.

After studying the Ryans form it was decided to add another section to try to get at some general teacher behaviors which might be expected to be more specifically the outcomes of education courses. Items 23–28 were added with this purpose in mind.

Subscore M: use of appropriate *vs.* inappropriate teaching techniques.

23. The teacher helps the pupils develop understanding, knowledge and skills.
24. The teacher shows sensitivity to individual differences.
25. The teacher maintains good classroom discipline.
26. The teacher helps the pupil develop efficient study habits.
27. The teacher provides a healthful and attractive classroom.
28. The teacher makes use of a variety of instructional materials.

An over-all summary judgment of teaching effectiveness (Subscore S) based on each classroom observation was also obtained. The following directions to the observer were included in the form used in this study.

*SUMMARY RATING*

Below is a scale to be used in giving the teacher you observed an over-all rating.

You are asked to think of each teacher as a whole individual and then rate him or her according to where you think he or she would fall on the scale for beginning teachers. This is your own over-all summary judgment and may be independent of individual items above.

Check appropriate number:

1. Really superior – already as effective as some of the best experienced teachers . . . . . 1. ☐
2. Very good – compares favorably with many experienced teachers . . . . . 2. ☐

Check appropriate number:

3. Slightly above average for first year teacher . . . . . 3. ☐
4. About average for first year teacher . . . . . 4. ☐
5. Slightly below average for first year teacher . . . . . 5. ☐
6. Very poor – needs to show considerable improvement to remain in teaching . . . . . 6. ☐
7. Really inferior – probably should not remain in teaching . . . . . 7. ☐

The final observation form as used in this study was called *Classroom Observation Report* and is presented in its entirety in Appendix B. While much of the present form is based on the TCS *Classroom Observation Record*, and grateful acknowledgment of this indebtedness is made, there are differences in the structure of the forms and in the way composite scores were computed.

### *THE OBSERVERS*

It was recognized from the start that much of the validity of this study would depend on the competence of those who would make the judgments based on the classroom observations. For this two things seemed required of the observers. First, they should be people who by their training, experience, and position would be presumed to be able to make the judgments involved. And second, the observers should have had enough practice with and discussion of the observation form to arrive at some common grounds for judging effectiveness.

The classroom of each teacher in the study was visited five times during the year. Two of the observations were made by educators – people engaged in teacher education, in supervision in the public schools or in State Departments of Education. Eleven different professional educators participated in the classroom observations. One of these was dean of a university school of education, several were college teachers of education courses with at least some responsibilities for supervising student teaching, several were or had been supervisors or administrators in public school systems, and two were from State Departments of Education. The training and experience backgrounds of these educator observers are tabulated in Table 6. The educator observers were not connected with the school systems involved in the study nor with the institutions in which the teachers

*Table 6*

QUALIFICATIONS OF EDUCATOR OBSERVERS

| Observer Number | Highest Degree Held | Years of Experience as | | | | | |
|---|---|---|---|---|---|---|---|
| | | Classroom Teacher | School Principal | Supervisor or Administrator | College Teacher | Member State Department | Professional Educator |
| 2 | Ed.D. | 5 | 2 | – | 6 | – | 13 |
| 3 | Ed.M. | 10 | 20 | 2 | – | – | 32 |
| 4 | M.A. | 30 | 1 | 7 | – | – | 38 |
| 5 | Ed.D. | 5 | 9 | 13 | 14 | – | 41 |
| 6 | M.A. | 3 | 4 | 12 | – | 9 | 28 |
| 7 | M.A. | 2 | 4 | 30 | 1 | – | 37 |
| 8 | Ph.D. | 4 | 6 | 4 | 1 | – | 15 |
| 9 | Ph.D. | 13 | 5 | 4 | – | 9 | 31 |
| 10 | M.A. | – | 5 | 36 | – | – | 41 |
| 32 | Ed.D. | 4 | 7 | – | 8 | – | 19 |
| 33 | Ed.D. | 10 | 4 | – | 8 | – | 22 |
| Senior Observer | M.S. | 3 | 4 | 32 | – | – | 39 |

were prepared.[6] In no case did an observer visit the classroom of a teacher with whom he was already acquainted.

The observers were not informed about the college preparation or certification status of the teachers and were asked to make their judgments, as far as humanly possible, without any consideration of the possible backgrounds of the teachers. They were instructed, rather, to make their judgments solely on the basis of what went on in the classroom. Nevertheless, in order to avoid any danger of stacking the ratings by having them all made by professional educators who might be suspected of having a stake in education courses and so be consciously or unconsciously biased in their judgments, another group of observers was chosen from professions other than teaching.

Thus, two classroom visitations were also made to each beginning teacher by members of this second group of observers. While these observers from other professions were not expected to be experts in teaching methodology, they were expected to be able to make general judgments as to good and bad teaching, especially as viewed in light of their own specialities. These latter observers were recruited

[6]Because of scheduling difficulties a few observations were made by two professors from the University of Miami. Only one of the teachers involved had taken work at the University of Miami.

from the Miami area, but in no case had they had prior acquaintance with the teachers they were asked to observe.

The six observers from other professions who participated in the study included a civil engineer, a lawyer, an osteopathic physician, a recreation group worker, and two case workers and supervisors in social service. Each of these observers held the appropriate professional degree. Insofar as could be scheduled, the engineer observed mathematics and physical science teachers, the lawyer observed English and social studies teachers, the physician observed biology teachers, and the social service group observed elementary teachers. A tabulation of the professional experiences of these observers is given in Table 7.

*Table 7*

**PROFESSION AND YEARS OF PRACTICE OF SIX OBSERVERS FROM PROFESSIONS OTHER THAN EDUCATION**

| Observer Number | Profession in which Qualified | Professional Degree | Years of Professional Practice |
|---|---|---|---|
| 21 | Social Service | M.S. | 12 |
| 22 | Social Service | M.A. | 11 |
| 23 | Group Work – Recreation | M.S. | 11 |
| 24 | Medicine (Osteopathy) | D.O. | 3 |
| 25 | Law | LL.B. | 5 |
| 26 | Engineering | M.S. | 19 |

In addition to the two observations by professional educators and the two observations by members of other professions, each teacher was seen by the one general observer who spent full time on the study for five months and observed every teacher in the study. A man was secured for this position who had a long and successful career as an educator including three years as a classroom teacher, four years as a school principal, and 32 years as a city school superintendent.

The observers participating in the study are listed in Appendix C.

### *TRAINING SESSIONS FOR THE OBSERVERS*

Each observer in the study participated in two training sessions on the use of the *Classroom Observation Report.* A two-day session was held before the observations in the fall semester and a half-day

session was held before the start of observations in the spring semester. Since the visitations by observers recruited from other professions were made in the two-week period following the visitations by professional educators, separate training sessions were held for them. Thus there was a total of four different training periods, two in the fall, and two in the spring. The general observer participated in three of these training sessions.[7]

During the fall training sessions, the morning of the first day was devoted to a study of the evaluative instrument. In the afternoon all of the observers visited the classroom of the same teacher in the campus laboratory school for a period of an hour and a half. Each observer then made an independent rating of the teacher on each item of the *Classroom Observation Report.* The remainder of the afternoon was spent in discussing the various items on the report and the ratings given. An attempt was made to explore the reasons behind the ratings when one or more of the observers had ratings which departed from the general agreement. An effort was made to clarify the items so that differences when they did occur would reflect differing interpretations of what was seen rather than differing interpretations of what an item was supposed to mean. Regular assignments of classroom visitations began on the third day.

The professional educators had one observation for refresher training in February before they started their spring series of visitations, and the observers from other professions had their refresher training before they started their visitation in March.

In the summary of the training conferences the following points were emphasized:

a. The observers were to be introduced or introduce themselves to the teachers, but were to ask no questions about the classroom situation. They were to make themselves as inconspicuous as possible during the classroom visitation.

[7] During this first training period, the study was fortunate in securing the services of Dr. David G. Ryans, Director of the Teacher Characteristics Study, as a consultant in the use of the observation form developed in that study. Dr. Ryans' contribution to the training period was most helpful in the clarification of items and observational procedure. However, he could in no way be held responsible for any shortcomings which might have developed in the adaptation and use of the *Classroom Observation Record* in this study.

b. The observers were not to fill out the form or take notes during the observation. The form was to be filled out as soon as possible after the classroom visit. The observers were encouraged to try to assess what they saw in the classroom and not to try to evaluate the behavior in terms of their own interpretations of what should be done.

c. The observers were to avoid premature judgments. They were to wait until the observation was completed before making the judgments.

d. The observers were especially warned against making an over-all judgment and then marking individual items to agree with that judgment. Each item was to be considered independent of any other item.

e. The observers were to be as objective as possible about making a judgment as to the extent to which certain teacher behavior was present or absent. This judgment was to be made without regard to whether they thought such teacher behavior was good or bad.

f. The summary rating was designed to give the observer an opportunity to make his own judgments in terms of what his own experience led him to believe to be effective or ineffective teaching.

### *SUMMARY*

The procedure for estimating teaching effectiveness selected as most appropriate and feasible for the present study was to have such estimates made by competent observers on the basis of systematic and repeated classroom observations. An observation blank, largely adapted from the *Classroom Observation Record* developed in the Teacher Characteristics Study, was devised to give five subscores of teaching effectiveness. Eleven professional educators, six members of other professions, and one general observer were selected for the classroom observers and were given directed practice in the use of the observation form.

*Chapter IV*

# COLLECTING THE DATA ABOUT TEACHING EFFECTIVENESS

## *PREPARATION FOR THE VISITATIONS*

The first year of teaching, especially the first few months, is often a time of some tension and anxiety for the beginning teacher. The possibility that the visitations by outside observers might add to these tensions and anxieties was seriously considered. Out of consideration for the teacher as a person and for the importance to the study of the classroom situation being as natural as possible, attempts were made to allay as far as possible any apprehensions the teachers might have about the classroom visitations and the use of the results.

During the orientation week before the opening of the Fall Semester, 1959-60, the director of the study spoke about the forthcoming observations at meetings of new teachers in the Dade County schools. Emphasis was placed on the fact that the classroom visitations were being made for research purposes and would be in no way connected with the regular supervisory and evaluative program of the school system. The teachers were assured that none of the results of the study pertaining to individual teachers would ever become a part of the school system's personnel records.

At the time of each visitation the teacher was given a letter in which the statements above were repeated and in which the teachers were asked to ignore as far as they possibly could the presence of the observer in the classroom and to proceed with the regular program for the day.[1]

While no attempt was made to hide the fact that the study was concerned with comparing the relative effectiveness of beginning teachers with and without the prescribed sequence of education courses, this aspect was not specifically emphasized in public discussions. Rather, the study was referred to as a research investigation of problems of beginning teachers and patterns of college preparation. In

[1]See Appendix B for a copy of this letter.

particular, it seemed important that the observers not be unduly conscious of this aspect of the study lest their evaluation of the classroom behavior of the teacher be unconsciously colored by conjecture about the training background of the teacher.

Two approaches were made to this problem. The first was through the training sessions for the observers in which little was said about possible differences in professional preparation the teachers might bring to the classroom and much was said about the use of the *Classroom Observation Report* as an aid to an unbiased and systematic report on the observed behavior of pupils and teachers in the classroom.

The second approach to preparing the way for the visitations was through the principals. A general presentation of the study was made at a meeting of all the principals in the Dade County schools. At this meeting the information given to the new teachers was repeated and the importance of not mixing up principal judgment and observer judgment about the teachers was emphasized. Because of the assurances to the teachers about the confidential nature of the observations and because of the importance of uninfluenced judgments by the observers, the principals were asked not to discuss their teachers with the observers, either as to the background and certification status of the teacher or as to what the observer thought of the teaching he had seen in the classroom. These points were covered again in a letter to the principal taken by the observer at the time of each visitation.[2]

Because the number of beginning teachers available for the study was not known until after the schools opened, the decision to include teachers from Broward and Monroe Counties had to be made after it was too late to hold group meetings of the principals and new teachers in these counties. However, similar information about the study was given to teachers and principals through correspondence, long distance phone conversations with most of the principals, and visits to the county offices.

### *VISITATIONS TO THE CLASSROOMS*

The first round of classroom visitations by the educator observers was made during the first two weeks of November 1959. The first round of visitations by the observers from other professions was made

[2] See Appendix B for a copy of this letter.

during the first two weeks in December. The second round of visitations was conducted by the educator observers during the second and third weeks of February 1960 and by the observers from other professions during the third and fourth weeks of March. The general observer who visited all the teachers in the study started with the first group of observers in November and kept at it daily, except for the month of January, until the end of March. His visitations were about equally divided between the fall semester and the spring semester.

The classroom visitations were scheduled for from an hour and a half to two hours in the elementary schools and for two 50-minute periods in the secondary schools. The observers were ordinarily scheduled for two observations a day, although occasionally they visited three or only one. The principals were called the school day prior to the observation to check on the schedule of the teacher to be visited so that consequently most of the teachers knew ahead of time when the observer was coming and so were not ordinarily caught unaware.

An attempt was made, insofar as possible and without the knowledge of the observer concerned, to have each observer visit an equal number of provisionally and fully certified teachers. A listing of the number of observations made to each group of teachers by each observer is presented in Table 23 in Appendix A. For only one observer was the difference between the number of provisionally certified and fully certified teachers observed greater than one.

Teachers from a total of 79 different schools were included in the study, with the greatest number of teachers from any one school being seven, and with a number of schools having only one representative. The schools in which beginning teachers were visited were distributed as follows:

| | *County* | | | |
|---|---|---|---|---|
| *Type of School* | *Dade* | *Broward* | *Monroe* | *Total* |
| Elementary | 38 | 1 | 3 | 42 |
| Junior High | 22 | 5 | – | 27 |
| Senior High | 7 | 2 | 1 | 10 |
| All Types | 67 | 8 | 4 | 79 |

### *RATINGS FROM PRINCIPALS*

In December a letter was sent to each of the principals whose faculty included one or more teachers in the study asking him to fill out a rating form for each of his teachers involved in the study giving his personal evaluation of their effectiveness during the first semester of their teaching experience. The form used for this rating by the principal was essentially the same as the summary rating form used by the regular observers. Early in May of the spring semester a second evaluation of each teacher by the principal was requested and received.

### *SUMMARY*

A variety of steps were taken to prepare the way for the observers and to reduce any apprehensions the beginning teachers might have about the classroom observation. Each teacher was observed five times during the year. Two of the observations were made by professional educators and two by members of professions other than teaching. The fifth observation was made by a general observer who visited all the teachers in the study once. Each observer visited approximately an equal number of provisionally and fully certified teachers. Each teacher also was rated twice by his principal.

*Chapter 4*

# ANALYSIS AND INTERPRETATION OF THE DATA

## *THE BASIC DATA*

The basic analysis of the data collected was in terms of the five subscores of teaching effectiveness which the *Classroom Observation Report* was designed to provide. Hence the first step was to get a numerical value for each which would be suitable for statistical treatment.

### *Scaling the Data*

For most of the analyses made, subscores based on more than one classroom observation (usually five) were used. This involved a combination of subscores from several different observers and introduced a complication in terms of the comparability of the ratings of these different observers. Despite the attempt in the training period to bring the observers together in their ratings, some still tended generally to rate high and others generally to rate lower. Since this study was concerned with relative effectiveness of different groups of teachers rather than with relative severity of ratings of different observers, a method was needed for combining the ratings from one observer to another which would retain the intra-observer variations and eliminate the inter-observer variations.

To accomplish this, all of the ratings on a given item of the scale by a given observer, considered together, were converted into standard scores with a mean of 50 and a standard deviation of 10. Thus, the distribution of all the ratings on a certain item given by one observer would be the same, from the standpoint of mean and standard deviation, as that of all the ratings on that item given by any other observer or combination of observers. Because of this treatment of the data it follows that no meaningful statement can be made about the ratings of the teachers as compared to some absolute scale of effectiveness, but that meaningful statements can be made about the relative ratings of one group of teachers as compared to another.

For each observation, the standard scores on the various items classified under either X, Y, Z, or M were averaged to give a numerical

value for each of these subscores. These averages were recorded as three-digit numbers with a theoretical mean of 500. Since there was only one summary rating for each observation, no averaging of items was involved. The standard score for the summary rating was merely multiplied by 10 to make it comparable in magnitude to the other subscores.[1]

Since there were five classroom observations for each teacher, there were five estimates for each of the subscores. These five estimates were averaged to give a combined value for each subscore. The major analyses of this chapter are made in terms of these average subscores based on five observations. Some analyses are also made in terms of subscores based on fewer than five observations.

*Reliability of Subscores*

An estimate of the reliability of the subscores was obtained by comparing the ratings given by the observers from professional education with those given by observers from other professions. The reliability coefficients between the average of the two ratings by educators and the average of the two ratings by other professionals were stepped up by the Spearman-Brown formula to give an estimate of the reliability of the average of all four ratings. The results were as follows:

| *Subscore* | *r* |
|---|---|
| X | .62 |
| Y | .68 |
| Z | .68 |
| M | .68 |
| S | .73 |

The reliability coefficients reported here are not as high as would have been desirable. This in part may be a reflection of the fact that the comparison was between ratings given by educator and non-educator observers who may not have construed a given factor in the same way. While the reliability coefficients are certainly not high enough for using the subscores for making decisions about individual teachers, they are reasonably adequate for the type of group analysis with which this study is concerned and upon which the conclusions are based.

[1]Because the numerical values for the original ratings on items 1 – 29 ran from a low rating of 1 to a high rating of 7 while the summary ratings ran from a low rating of 7 to a high rating of 1, Subscore S was adjusted by subtracting it from 1000 so that it increased in numerical value from a low to a high rating in accord with the other subscores.

It might be noted at this point that there was a rather high relationship among the five subscores. The intercorrelations are reported in Table 8. The correlations indicate that a teacher who rated high on

*Table 8*

INTERCORRELATIONS AMONG EFFECTIVENESS SUBSCORES OF 134 BEGINNING TEACHERS, BY TEACHING LEVEL

| Teaching Level and Subscore | Subscore Y | Z | M | S |
|---|---|---|---|---|
| **Elementary (N=66)** | | | | |
| X | .86 | .83 | .71 | .85 |
| Y | | .86 | .86 | .89 |
| Z | | | .85 | .90 |
| M | | | | .86 |
| **Secondary (N=68)** | | | | |
| X | .77 | .69 | .69 | .67 |
| Y | | .86 | .87 | .87 |
| Z | | | .90 | .88 |
| M | | | | .89 |
| **Elementary and Secondary (N= 134)** | | | | |
| X | .82 | .77 | .70 | .77 |
| Y | | .86 | .87 | .88 |
| Z | | | .87 | .89 |
| M | | | | .87 |

**Note:** In this and subsequent tables in this report, all subscores, unless otherwise noted, are based on the average from five classroom observations. See Chapter III for a description of the subscores.

one subscore tended to rate high on the others as well. This might reflect a large amount of a general factor in the five measures of effectiveness or the inability of the observers to disentangle themselves from the halo effect. Whatever the cause, the relatively high intercorrelations would tend to make analyses on the separate subscores show similar results.

### *STATISTICAL SIGNIFICANCE OF THE RESULTS*

The group differences reported in this section are based on pair differences. The teachers of a pair were roughly matched on the

background variables of age in years, years since college graduation, over-all academic average, number of credits in the major teaching field, and interview score (when available). The members of the pair are distinguished by the amount of the professional sequence of education courses completed prior to the start of teaching. The group is designated by the amount of professional preparation completed by the provisionally certified teacher of the pair, either none of the prescribed courses in education or else some education courses, but always with student teaching lacking. In each case the second teacher of the pair had qualified for full certification including completion of the prescribed sequence of education courses.

The pair difference is the score for the provisionally certified teacher of the pair minus the score for the fully certified teacher. A plus difference would favor the provisionally certified, a minus difference the fully certified. If the mean pair difference on a certain subscore is significantly different from zero, then the two subgroups (provisionally certified vs. fully certified) would generally be considered as coming from different populations with respect to whatever that subscore reflects.[2]

*Comparisons Based on Five Observations*

The first group considered was that one made up of the 15 elementary teachers with no professional courses in education along with the 15 matched fully certified teachers with the complete sequence of education courses. As shown in the basic data presented in Table 9, the subgroups differed at the 1% level of confidence on two of the individual subscores (Z – stimulating, imaginative vs. dull, routine teacher behavior; and S – over-all summary judgment of teaching effectiveness).

Although three of the subscore mean differences were in themselves not significantly different from zero, they seemed to be in line with the other two in that the difference was in favor of the fully certified group. To check on the strength of this tendency the null hypothesis with respect to the five t-ratios was tested. This hypothesis assumes that these five t-ratios are a random sample from a population of similar t-ratios in which the true mean t-ratio is zero and that the

[2] Technically speaking, the hypothesis rejected in such a case is that the group of pairs is a random sample of a population of similar teacher pairs.

*Table 9*

**EFFECTIVENESS SUBSCORES**
**15 Pairs of Beginning Elementary Teachers, by Professional Preparation**

| Subscore or Statistic | Professional Preparation | | | | Pair Differences | | |
|---|---|---|---|---|---|---|---|
| | None | | Full | | | | |
| | M | SD | M | SD | M | SE | t |
| X | 478.47 | 52.98 | 505.40 | 53.75 | −26.93 | 16.99 | −1.59 |
| Y | 485.67 | 51.58 | 507.07 | 48.38 | −21.40 | 16.67 | −1.28 |
| Z | 467.87 | 48.09 | 517.53 | 51.92 | −49.67 | 16.50 | −3.01** |
| M | 480.73 | 59.93 | 519.13 | 42.97 | −38.40 | 18.45 | −2.08 |
| S | 463.20 | 63.19 | 518.53 | 50.40 | −55.33 | 15.78 | −3.51** |
| Mean of five t-ratios | | | | | | | −2.29 |
| Standard error of mean of five t-ratios | | | | | | | 0.42 |
| t-ratio of mean of five t-ratios | | | | | | | −5.44** |

mean t-ratio of −2.29 for this particular sample is no greater than would be expected occasionally as the result of the chance fluctuations involved in random sampling.

Dividing the mean of the five t-ratios, −2.29, by its standard error, 0.42, gave a t-ratio of −5.44. Since a t-ratio of 4.60 with four degrees of freedom is significant at the 1% level, the hypothesis that the observed trend in the five subscores is accidental was rejected. Rather it was concluded that there must be something in common running through the five subscores that caused them, as a set, to differentiate between the two subgroups of beginning elementary teachers. Since the experimental design was set up to reveal just such differences, it was concluded that beginning elementary teachers, at least beginning elementary teachers like those in this study, who have completed the sequence of prescribed courses in education would, on the whole, receive significantly higher ratings on the five subscores of teaching effectiveness than would similar beginning elementary teachers who have completed no education courses prior to the start of teaching.

A similar analysis was made for various other groupings of the teachers in the study. The detailed data are presented in Tables 24, 25, and 26 in Appendix A. A summary of these analyses is reported in Table 10. For each of the 9 groups of teachers there were five mean subscore differences. For every one of the 45 subscore means checked, the difference was in favor of the teachers who had taken the courses

*Table 10*

**SIGNIFICANCE RATIOS OF MEAN DIFFERENCES ON EFFECTIVENESS SUBSCORES**
**76 Beginning Elementary and Secondary Teacher Pairs**
**By Teaching Level and Professional Preparation**

| Teaching Level and Professional Preparation | N | Significance Level of Subscore Means | | | | | t-ratios for Mean Pair Differences on 5 Subscores | | |
|---|---|---|---|---|---|---|---|---|---|
| | | X | Y | Z | M | S | M | SE | t |
| **Elementary** | | | | | | | | | |
| None | 15 | | | ** | | ** | −2.29 | 0.42 | − 5.44** |
| Some | 21 | ** | * | ** | ** | ** | −2.99 | 0.15 | −19.89** |
| None or Some | 36 | ** | ** | ** | ** | ** | −3.77 | 0.35 | −10.69** |
| **Secondary** | | | | | | | | | |
| None | 19 | | | * | | | −0.97 | 0.40 | − 2.42 |
| Some | 21 | | | | | | −1.11 | 0.30 | − 3.68* |
| None or Some | 40 | | | | * | | −1.45 | 0.37 | − 3.97* |
| **Elementary and Secondary** | | | | | | | | | |
| None | 34 | | | ** | ** | * | −2.18 | 0.47 | − 4.61** |
| Some | 42 | * | * | * | ** | ** | −2.84 | 0.26 | −10.99** |
| None or Some | 76 | * | ** | ** | ** | ** | −3.57 | 0.39 | − 9.07** |

in education prescribed for full certification. In addition the set of five mean subscore differences were significantly in favor of the fully trained teachers at the 1% level of confidence when these teachers were compared with (a) elementary teachers with *none of the professional* sequence, (b) elementary teachers with some but not all of the of the professional sequence, (c) the combined group of elementary teachers having none or only part of the professional sequence, (d) the combined group of elementary and secondary teachers having no courses in education, (e) the combined elementary and secondary groups having some but not all of the prescribed education courses, and (f) the combination of all the teachers in the study who had had none or only some of the prescribed education courses. The differences in the set of five mean subscores were also significantly in favor of the fully trained teachers but at the 5% level of confidence when they were compared with (a) the 21 secondary teachers with part of the professional sequence, and (b) the combined groups of secondary teachers with none or only part of the prescribed education courses. Of the nine group comparisons made, only in the case of the 19 secondary teachers with no professional courses in education was the difference too small to be statistically significant. In common with the others, however, this group difference favored the fully prepared teachers and would have a confidence level of about 7%.

The fully prepared teachers were consistently rated as more effective teachers than their counterparts who were partially prepared or unprepared with respect to the professional sequence. Taken as a whole, these differences were too great to be attributed to the chance selection of the teachers involved.

*Other Comparisons*

Similar analyses were made using combinations of raters other than all five at once. Because of the reduced reliability of subscore averages based on fewer observations and the consequent requirement of a larger N for stability of results, these comparisons were made for the combined elementary and secondary groups only. (Summarized in Table 12).

Of particular interest were the group means based on the ratings given by the general observer who saw all the teachers in the study. The results of his ratings are presented in detail in Table 11. On the over-all summary rating (Subscore S) for the "None" group the mean difference was significant at the 5% level of confidence. Although none of the four other subscores for this group individually showed a significant mean difference, the average of the five t-ratios was significant at the 5% level. This observer's ratings on the partially prepared group showed all mean pair differences in favor of the fully prepared teachers, with three of them significant at the 5% level and the mean of the five t-ratios significant at the 1% level. Similarly, his ratings on the grand combination of all the teachers in the study showed the mean pair difference on the over-all summary rating to be significant at the 1% level, three of the other four subscore differences significant at the 5% level, and the mean of the five t-ratios significant at the 1% level of confidence, all in favor of the fully prepared teachers.

Similar comparisons were made for five other combinations of observations: the two observations made in the fall semester, the two made in the spring semester, the two made by educators, the two made by other professionals, and a combination of four observations made up of the two by educators and the two by other professionals. All of these additional comparisons favored the fully prepared teachers and most of the differences were significant at the 1% level of confidence. In only one instance (the "None" group in the spring semester) was the group difference too small to be statistically significant.

A summary of the group comparison for the combined elementary

*Table 11*

**EFFECTIVENESS SUBSCORES FROM ONE OBSERVATION BY GENERAL OBSERVER**
**76 Pairs of Beginning Teachers, by Professional Preparation**

| Professional Preparation and Subscore or Statistic | Certification Status: Provisional M | Provisional SD | Full M | Full SD | Pair Differences: M | SE | t |
|---|---|---|---|---|---|---|---|
| **None (N=34)** | | | | | | | |
| X | 494.41 | 88.33 | 508.38 | 86.21 | −13.97 | 18.15 | −0.77 |
| Y | 500.50 | 90.04 | 515.26 | 85.53 | −14.76 | 18.70 | −0.79 |
| Z | 486.65 | 86.43 | 518.88 | 81.46 | −32.24 | 18.95 | −1.70 |
| M | 480.97 | 88.46 | 509.26 | 85.58 | −28.29 | 17.98 | −1.57 |
| S | 472.40 | 98.80 | 528.80 | 98.40 | −56.50 | 21.20 | −2.67* |
| Mean of 5 t-ratios | | | | | | | −1.50 |
| Standard error of mean of 5 t-ratios | | | | | | | 0.35 |
| t-ratio of mean of 5 t-ratios | | | | | | | −4.28* |
| **Some (N=42)** | | | | | | | |
| X | 483.05 | 82.94 | 517.90 | 91.42 | −34.86 | 18.21 | −1.91 |
| Y | 473.69 | 82.31 | 515.24 | 88.22 | −41.55 | 19.17 | −2.17* |
| Z | 484.29 | 79.66 | 509.05 | 90.34 | −24.76 | 18.28 | −1.35 |
| M | 483.52 | 78.63 | 520.19 | 76.37 | −36.67 | 17.68 | −2.07* |
| S | 473.30 | 92.90 | 529.50 | 94.30 | −56.20 | 21.90 | −2.57* |
| Mean of 5 t-ratios | | | | | | | −2.01 |
| Standard error of mean of 5 t-ratios | | | | | | | 0.20 |
| t-ratio of mean of 5 t-ratios | | | | | | | −10.14** |
| **None or Some (N=76)** | | | | | | | |
| X | 488.13 | 85.59 | 513.64 | 89.26 | −25.51 | 12.90 | −1.98 |
| Y | 485.68 | 86.89 | 515.25 | 87.02 | −29.57 | 13.50 | −2.19* |
| Z | 485.34 | 82.78 | 513.45 | 86.61 | −28.11 | 13.11 | −2.14* |
| M | 482.38 | 83.18 | 515.30 | 80.81 | −32.92 | 12.58 | −2.62* |
| S | 472.90 | 95.60 | 529.20 | 96.20 | −56.30 | 15.30 | −3.69** |
| Mean of 5 t-ratios | | | | | | | −2.52 |
| Standard error of mean of 5 t-ratios | | | | | | | 0.31 |
| t-ratio of mean of 5 t-ratios | | | | | | | −8.14** |

and secondary teacher pairs and based on various combinations of observations is presented in Table 12. Each line of the table represents the comparison of the mean pair difference for each of the five subscores for the group named and also a significance test for the set of five t-ratios made up of one for each subscore. Of the 105 mean pair differences on individual subscores represented in the table, 40 favored the fully prepared teachers to a degree significant at the 1% level of

*Table 12*

**SIGNIFICANCE RATIOS OF MEAN PAIR DIFFERENCES ON EFFECTIVENESS SUBSCORES**
**76 Beginning Elementary and Secondary Teacher Pairs By Professional Preparation and Combination of Observers**

| Professional Preparation and Combination of Observers | Significance Level of Subscore Means | | | | | t-ratios for Mean Pair Differences on 5 Subscores | | |
|---|---|---|---|---|---|---|---|---|
| | X | Y | Z | M | S | M | SE | t |
| **None (N=34)** | | | | | | | | |
| All Five | | | ** | ** | * | −2.18 | 0.47 | − 4.61** |
| Four | | | ** | ** | | −2.03 | 0.50 | − 4.08* |
| Two educator | | | ** | ** | | −1.99 | 0.52 | − 3.84* |
| Two other professional | | | * | | | −1.51 | 0.36 | − 4.22* |
| Two fall semester | * | | ** | * | * | −2.28 | 0.33 | − 6.93** |
| Two spring semester | | | * | * | | −1.09 | 0.49 | − 2.23 |
| Single observer | | | | | * | −1.50 | 0.35 | − 4.28* |
| **Some (N=42)** | | | | | | | | |
| All Five | * | * | * | ** | ** | −2.84 | 0.26 | −10.99** |
| Four | | * | * | ** | ** | −2.59 | 0.25 | −10.29** |
| Two educator | ** | ** | * | ** | ** | −3.12 | 0.23 | −13.41** |
| Two other professional | | | | * | | −3.12 | 0.23 | −13.41** |
| Two other professional | | | | * | | −1.53 | 0.28 | − 5.51** |
| Two fall semester | * | * | * | ** | ** | −2.63 | 0.20 | −13.37** |
| Two spring semester | | | | * | ** | −2.00 | 0.24 | − 8.45** |
| Single observer | | * | | * | * | −2.01 | 0.20 | −10.14** |
| **None or Some (N=76)** | | | | | | | | |
| All five | * | ** | ** | ** | ** | −3.57 | 0.39 | − 9.07** |
| Four | * | * | ** | ** | ** | −3.28 | 0.41 | − 8.04** |
| Two educator | ** | ** | ** | ** | ** | −3.70 | 0.36 | −10.37** |
| Two other professional | | | ** | ** | * | −2.12 | 0.37 | − 5.71** |
| Two fall semester | ** | ** | ** | ** | ** | −3.48 | 0.26 | −13.64** |
| Two spring semester | | | ** | ** | * | −2.27 | 0.40 | − 5.74** |
| Single observer | | * | * | * | ** | −2.52 | 0.31 | − 8.14** |

confidence, 30 favored the fully prepared at the 5% level, and the remaining 35 differences on individual subscores favored the fully prepared although these differences were not great enough for statistical significance.

For each group comparison there were five t-ratios, one for the mean pair difference on each of the five effectiveness subscores. A test of the significance of these sets of five t-ratios is reported in the right hand part of Table 12. Of the 21 means of five t-ratios, all favored the fully prepared teachers, 16 at the 1% level of confidence

and four at the 5% level, and only one (that based on the two spring observations) was too small to be statistically significant.

The numerous comparisons reported in the last two paragraphs should not be thought of as all independent of one another. For example, an observation made by an educator in the fall semester is included in the fall semester combination, in the educator combination, in the combination of four, and in the combination of five. Similarly, the "None" or "Some" group of 76 teacher pairs is made up of the "None" group of 34 pairs plus the "Some" group of 42 pairs. Nevertheless, the evidence here is still overwhelmingly in favor of the fully prepared teachers.

## *INTERPRETATION OF THE RESULTS*

Having established that fully certified beginning teachers are consistently and significantly rated better than provisionally certified beginning teachers, the problem remains of establishing whether this difference in rating is primarily related to differences in preparation or whether a substantial amount of the difference might be attributed to some other factor setting the two groups apart.

### *The Age and Year of Graduation Factors*

As was noted in the discussion of the sample in Chapter II, the groups were rather well equated on most background factors such as quality point average and number of credits earned in the teaching major so that these can be disregarded in trying to account for the differences in rated effectiveness. On age and year of graduation, however, the matching was not too close. There was a definite tendency for the provisionally certified groups to contain beginning teachers who were older and longer removed from college graduation than the teachers in the fully certified groups.

It will be recalled that in an attempt to have as large a sample as possible, each provisionally certified beginning teacher who was found was retained in the study whether or not an exact match could be found for him among the fully certified group. Even so, the matching was rather successful except for age and year of graduation. There were just more older people in the provisionally certified group and more people who did not begin teaching until a number of years after graduation than could be found in the fully certified group.

The use of more mature groups – retired military personnel or housewives whose children have grown up or at least reached school age – has frequently been proposed as a source of supply to help meet the teacher shortage. This investigation seems to indicate that these older persons without the professional sequence of education courses are not, in general, as effective as younger, more recent graduates with full training. Does this mean that the schools would get more effective teachers by passing up the older beginners, or does it mean that effective teaching would result from hiring the fully prepared teachers with reasonable disregard of their age and recency of graduation?

*Estimating the Influence of the Age and Year of Graduation Factors*

The central question of this section is which is the more tenable hypothesis: that the observed differences in teaching effectiveness between the two groups are substantially related to age and recency of graduation and only in a minor way related to differences in professional preparation, or that these observed differences in teaching effectiveness are primarily related to differences in professional preparation and have little or no relationship to differences in age and recency of graduation? Several lines of investigation of this problem were followed.

*(a) Restricted Range in Age and Recency of Graduation.* The first approach to assaying the relative influence on observed differences in average subscores of differences in age and recency of graduation as compared to differences in preparation was to hold year of birth and year of college graduation constant and see what happened to the ratings on teaching effectiveness. For this purpose a subsample of the teachers in the study was selected which included all those who were born in either 1936 or 1937 and who graduated from college in either 1958 or 1959.

Because of the reduced numbers involved, those with no courses in professional education and those with some professional courses but no student teaching were combined into one group designated as the provisionally certified. The numbers in the subgroups of this sample were:

| *Certification Status* | *Elementary* | *Secondary* | *Both Levels* |
|---|---|---|---|
| Provisional | 6 | 8 | 14 |
| Full | 18 | 21 | 39 |
| Total | 24 | 29 | 53 |

The means for each of the subscore ratings for the provisionally certified and the fully certified subgroups were computed and compared as means of independent samples. The results are presented in Table 13.

In each case – for every subscore in the elementary, the secondary and the combined groups – the difference of the means was in favor of the teachers having completed the full sequence of professional courses in education. For the secondary groups the difference of the means was significant at the 1% level of confidence for one of the subscores (S – the over-all summary rating) and at the 5% level of confidence for two subscores (Z – stimulating, imaginative versus dull, routine teacher behavior, and M – appropriate vs. inappropriate utilization of teaching techniques). In addition, the differences were so consistently in favor of the fully certified teachers that the mean of the set of five t-ratios was significantly different from zero at the 1% level of confidence.

When the elementary teachers were considered separately, the means were again all in favor of fully prepared teachers, although the mean for no individual subscore was significantly different from zero. However, when the consistent pattern for the five subscores was studied in terms of the average t-ratio, again the difference in favor of the fully certified teachers was significant at the 1% level of confidence.

When the secondary and elementary teachers were considered together, the means were significantly different at the 5% level for three of the subscores (Z – stimulating, imaginative vs. dull, routine teacher behavior; M – appropriate vs. inappropriate use of teaching techniques; and S – over-all summary rating). Again the set of five t-ratios favored the fully certified teachers to a degree significant at the 1% level.

The mean ratings which have just been discussed were based on the average of all five classroom observations. The results were also studied with six other combinations of raters: the two professional educator raters, the two raters from other professions, the two ratings

*Table 13*

EFFECTIVENESS SUBSCORES OF 53 BEGINNING TEACHERS BORN IN 1936 OR 1937 AND GRADUATED IN 1958 OR 1959
by Certification Status and Teaching Level

| Teaching Level and Subscore or Statistic | Certification Status: Provisional M | Provisional SD | Full M | Full SD | Group Differences: M | SE | t |
|---|---|---|---|---|---|---|---|
| Elementary | (N=6) | | (N=18) | | | (N=24) | |
| X | 489.83 | 60.61 | 520.89 | 67.47 | −31.06 | 32.41 | −0.96 |
| Y | 502.83 | 56.57 | 513.67 | 65.40 | −10.84 | 31.17 | −0.35 |
| Z | 496.83 | 50.27 | 522.44 | 57.91 | −25.61 | 27.62 | −0.93 |
| M | 512.83 | 58.88 | 528.17 | 49.97 | −15.34 | 25.77 | −0.60 |
| S | 500.67 | 61.61 | 526.89 | 66.67 | −26.22 | 32.22 | −0.81 |
| Mean of 5 t-ratios | | | | | | | −0.73 |
| Standard error of mean of 5 t-ratios | | | | | | | 0.11 |
| t-ratio of mean of 5 t-ratios | | | | | | | −6.40** |
| Secondary | (N=8) | | (N=21) | | | (N=29) | |
| X | 488.75 | 44.38 | 519.86 | 45.70 | −31.11 | 19.52 | −1.59 |
| Y | 470.88 | 75.33 | 517.71 | 47.87 | −46.83 | 24.45 | −1.92 |
| Z | 462.25 | 67.09 | 519.38 | 38.85 | −57.13 | 20.80 | −2.75* |
| M | 463.13 | 56.44 | 514.29 | 39.96 | −51.16 | 19.42 | −2.63* |
| S | 454.00 | 61.54 | 527.71 | 59.56 | −73.71 | 25.88 | −2.85** |
| Mean of 5 t-ratios | | | | | | | −2.35 |
| Standard error of mean of 5 t-ratios | | | | | | | 0.25 |
| t-ratio of mean of 5 t-ratios | | | | | | | −9.40** |
| Elementary and Secondary | (N=14) | | (N=39) | | | (N=53) | |
| X | 489.21 | 51.98 | 520.33 | 56.82 | −31.12 | 17.65 | −1.76 |
| Y | 484.57 | 69.75 | 515.85 | 56.65 | −31.28 | 19.18 | −1.63 |
| Z | 477.07 | 62.83 | 520.79 | 48.62 | −43.72 | 16.75 | −2.61* |
| M | 484.43 | 62.54 | 520.69 | 45.43 | −36.26 | 16.04 | −2.26* |
| S | 474.00 | 65.76 | 527.33 | 62.95 | −53.33 | 20.23 | −2.64* |
| Mean of 5 t-ratios | | | | | | | −2.18 |
| Standard error of mean of 5 t-ratios | | | | | | | 0.21 |
| t-ratio of mean of 5 t-ratios | | | | | | | −10.38** |

made in the fall, the two ratings made in the spring, the combination of the two educator and two other professional ratings, and the ratings of the one general observer who visited all of the teachers. This gave an additional 90 differences of means to consider. Limitations of space do not permit the presentation of the detailed results. Suffice it to say that, of the 90 additional comparisons made, in only six instances did the difference in means fail to be in favor of the fully prepared teachers.

It appears to be established beyond reasonable doubt that when age and recency of graduation are held constant, at least for recent graduates of normal age, the differences in ratings of teaching effectiveness between the beginning teachers having completed the full complement of professional education courses and those having only part or none of the sequence are satistically significant and in favor of the fully prepared teachers.

*(b) Correlational Analysis.* A second approach to determining the effective group difference accounting for the obtained group differences in ratings of teaching effectiveness was through correlational analysis. Coefficients of correlation were calculated between each of the five subscores (each based on five classroom observations) and certain items of background data, including age and year of college graduation.

Because of differing personnel practices in the three school systems from which teachers in the study were drawn, not all background data were available for all teachers. The correlations reported in this section were based on the 134 teachers for whom complete data were available. The correlations for age and year of college graduation for this group of 134 teachers are presented in Table 14.

*Table 14*

CORRELATIONS BETWEEN EFFECTIVENESS SUBSCORES AND AGE AND YEARS SINCE GRADUATION FOR 134 BEGINNING TEACHERS

| Effectiveness Subscore | Age in Years | Years Since Graduation |
|---|---|---|
| X | .06 | −.01 |
| Y | .05 | −.03 |
| Z | .03 | −.05 |
| M | .01 | −.06 |
| S | .04 | −.08 |

None of the coefficients reported in this table is significantly different from zero. The two variables involved would thus have only a chance and negligible effect on differences in mean ratings in the over-all group. This means that in any comparison between the average subscores of the provisionally certified and the fully certified groups involving all the teachers in the study, age and recency of graduation can be disregarded as factors accounting for the observed differences in mean subscores.

When the teachers in the study were divided into two groups according to the level of their teaching assignments, the situation was a little more complex. The correlation coefficients computed separately for the secondary and the elementary groups are presented in Table 15.

*Table 15*

CORRELATIONS BETWEEN EFFECTIVENESS SUBSCORES AND AGE AND YEARS SINCE GRADUATION
for 66 Elementary and 68 Secondary Beginning Teachers

| Effectiveness Subscore | Age in Years | | Years Since Graduation | |
|---|---|---|---|---|
| | Elementary | Secondary | Elementary | Secondary |
| X | −.10 | .27 | −.28 | .25 |
| Y | −.07 | .16 | −.23 | .13 |
| Z | −.13 | .19 | −.29 | .13 |
| M | −.17 | .20 | −.23 | .09 |
| S | −.07 | .16 | −.32 | .10 |

While none of these correlations is significantly different from zero at the 1% level of confidence there appears to be a tendency for the direction of the relationship to be reversed for the two groups.

To measure the extent of the tendency for the subscores for the secondary teachers to correlate positively with age each coefficient (after conversion by means of Fisher's Z-function) was divided by its standard error to get a t-ratio of significance. The mean of the five t-ratios (one for each of the five subscores) was divided by its own standard error to give a value of 9.38. With four degrees of freedom a t-ratio of 4.60 would be significant at the 1% level of confidence. Thus it can be stated with assurance that the five coefficients, although individually small, have, when considered as a group, a tendency to be positive that is so marked that it cannot be reasonably accounted for by the chance fluctuations to be expected in random sampling.

A similar analysis was made for the elementary group, for the combined group, and for the differences in the r's between the secondary and the elementary groups. Details of these analyses are presented in Table 16.

While the correlations between the subscores and age and year of graduation are individually rather low, there is a significant tendency for them to run in opposite directions for the secondary and the elem-

*Table 16*

SIGNIFICANCE RATIOS OF CORRELATIONS BETWEEN EFFECTIVENESS SUBSCORES AND AGE AND YEARS SINCE GRADUATION
66 Elementary and 68 Secondary Beginning T

| Subscore or Statistic | Elementary r | Elementary t | Secondary r | Secondary t | Both Levels r | Both Levels t | t-ratio for Difference[a] |
|---|---|---|---|---|---|---|---|
| N | 66 | | 68 | | 134 | | |
| **A. Age in Years** | | | | | | | |
| X | −.10 | −0.79 | .27 | 2.23* | .06 | 0.69 | 2.13* |
| Y | −.07 | −0.56 | .16 | 1.30 | .05 | 0.57 | 1.31 |
| Z | −.13 | −1.04 | .19 | 1.55 | .03 | 0.34 | 1.83 |
| M | −.17 | −1.37 | .20 | 1.64 | .01 | 0.11 | 2.12* |
| S | −.07 | −0.56 | .16 | 1.30 | .04 | 0.46 | 1.31 |
| Mean of 5 t-ratios | | −0.86 | | 1.60 | | 0.43 | 1.74 |
| Standard error of mean of 5 r-ratios | | 0.15 | | 0.17 | | 0.10 | 0.18 |
| t-ratio of mean of 5 t-ratios | | −5.60** | | 9.38** | | 4.41* | 9.48** |
| **B. Years Since College Graduation** | | | | | | | |
| X | −.28 | −2.29* | .25 | 2.06* | −.01 | −0.11 | 3.08** |
| Y | −.23 | −1.86 | .13 | 1.06 | −.03 | −0.34 | 2.06* |
| Z | −.29 | −2.37* | .13 | 1.06 | −.05 | −0.57 | 2.43* |
| M | −.23 | −1.86 | .09 | 0.73 | −.06 | −0.69 | 1.83 |
| S | −.32 | −2.64* | .10 | 0.81 | −.08 | −0.92 | 2.44* |
| Mean of 5 t-ratios | | −2.20 | | 1.14 | | −0.53 | 2.37 |
| Standard error of mean of 5 t-ratios | | 0.15 | | 0.24 | | 0.14 | 0.21 |
| t-ratio of mean of 5 t-ratios | | −14.49** | | 4.76** | | −3.80* | 11.69** |

[a] Difference of r for secondary teachers minus r for elementary teachers.

tary teachers. For this reason the two groups were considered separately.

It will be observed from Tables 4 and 5 that the secondary group with none of the professional sequence in education courses and the matching secondary group with the full sequence of education courses differed on age and recency of graduation only to a negligible degree. For these groups, then, the two factors of age and recency of graduation can be disregarded in trying to account for observed differences in subscores.

When the secondary group of beginning teachers who had completed part but not all of the professional sequence in education courses was compared against the matching group of beginning secondary teachers who had completed all of the professional sequence, there were significant differences in age and in recency of graduation. The 21 partially trained teachers were, on the average, 4.71 years older than their counterparts in the fully trained group, and had been out of college on the average four years longer. These two factors, then, needed to be considered when subscores on these particular groups of teachers were being compared.

Although the coefficients were small as seen in Table 15, the tendency in the secondary group was for age to be positively correlated with the subscores. This means that a reduction in the average age would tend to result in some slight reduction in the average subscores. Thus, since the fully certified were younger, the inaccuracies in matching on age which were present tend to minimize rather than exaggerate the group differences in rated effectiveness which were found.

A similar argument holds for the relation of years since college graduation to differences in average subscores for the secondary group. Since the correlation between the two factors was slight but consistently positive, a decrease in the number of years since graduation would tend to result in a slight decrease in average subscores. Since the partially trained group had been out of school longer than its fully trained counterpart, any adjustment to make the average year of graduation the same for the two groups would tend to decrease the the average subscore for the partially trained group and thus increase the difference in favor of the fully trained group. In other words, any effect that age and years since graduation would have on the differences in the observed subscores would be not to account for these differences but to account in some way for their not being larger than they were.

Also, when the secondary teachers with none or only some of the professional preparation were considered together and compared with their fully prepared matching teachers the two groups were found to differ somewhat in age and recency of graduation as well as in average subscores. And there was a small but consistent relationship between these variables. But, when note is made of the direction of these differences and the correlations, it will be seen that any computational adjustments made to offset the differences in age and recency of

graduation would tend to increase the differences in mean subscores in favor of the fully certified group.

To summarize for the various groupings of the beginning secondary teachers: the observed differences in subscores between the provisionally certified groups and the fully certified groups can be safely accepted without fear of these being spurious differences really related to differences in age and year of graduation rather than to professional preparation.

For the elementary groups the situation is different. Again both types of provisionally certified teachers – those with none and those with only some of the professional sequence of education courses – tended to be older and to be longer removed from college graduation than their fully certified counterparts. But in this case the correlations of age and years since graduation with the subscores were negative, whereas for the secondary teachers they were positive. The correlations of the various subscores with ages were small, ranging from –.07 to –.17 and with years since graduation also negative but slightly larger, ranging from –.23 to –.32.

For the elementary groups, then, the differences in age and recency of graduation that did exist between the provisionally and fully certified teachers tended to inflate somewhat the differences in classroom ratings. The extent to which correction for differences in these background factors would tend to reduce the size and significance of the differences in subscores was investigated. It is apparent that this correction in the subscores because of age and years since graduation is a function of (a) the size of the differences of group means on these two variables and (b) the degree of correlation between these two variables and the various subscores. The basic data for these comparisons are presented in Table 17.

From the data presented in the table it can be seen that age can be disregarded when dealing with the 15 elementary teachers with none of the professional sequence and their fully prepared counterparts for there is no essential difference between the groups in mean age. The 21 elementary teachers with some but not all of the professional sequence are significantly older than their matching group of 21 fully prepared teachers. The difference still holds when the two provisionally certified groups are combined and compared with their combined matching groups of fully prepared counterparts. Even though the correlations

*Table 17*

STATISTICS ON AGE AND YEARS SINCE GRADUATION AND THEIR CORRELATION WITH EFFECTIVENESS SUBSCORES

36 Pairs of Beginning Elementary Teachers, by Professional Preparation

| Statistic | Professional Preparation | | |
|---|---|---|---|
| | None | Some | None or Some |
| Number of pairs of teachers | 15 | 21 | 36 |
| **A. Age in Years** | | | |
| Mean pair differences | 0.07 | 5.29 | 3.11 |
| Significance ratio of mean pair differences | 0.05 | 4.02** | 2.93** |
| Range of correlations with 5 effectiveness subscores | (Computed for combined groups only) | | −.07 to −.17 |
| Range of significance ratios of 5 correlations | (Computed for combined groups only) | | −0.56 to −1.37 |
| **B. Years Since College Graduation** | | | |
| Mean pair differences | 4.60 | 4.52 | 4.56 |
| Significance ratio of mean pair differences | 4.86** | 3.49** | 5.42** |
| Range of correlation with 5 effectiveness subscores | (Computed for combined groups only) | | −.23 to −.32 |
| Range of significance ratios of 5 correlations | (Computed for combined groups only) | | −1.86 to −2.64* |

with classroom ratings are low a check needed to be made on the possible effect of these matching inaccuracies in age and years since graduation on the significance of group differences in rated effectiveness. The critical group to be investigated in this connection was the "Some" group since the inclusion of the "None" group which had no essential difference in age between the provisionally and fully certified, in the combined group would only tend to weaken any effect differences in age might have on differences in the mean ratings of effectiveness.

When the variable, years since graduation, is considered, it will be seen that both types of provisionally certified elementary teachers differed materially from their fully certified matching teachers. What is still needed to complete the argument about the central hypothesis of this section is some way to test the effect of these differences in age and years since graduation on the differences in average subscores based on the classroom observations for the elementary groups. This leads to the third main approach to the problem of the probable causal differences.

*(c) Analysis of Covariance.* The technique of analysis of covariance provides a method of estimating the significance of a set of differences in means after adjustments have been made for differences in one or two background variables which are related to the experimental variable but on which the groups being compared are not satisfactorily matched.

From an examination of Table 17 it is seen that, for the elementary teachers with none of the professional sequence as compared to their matched counterparts with the full professional sequence, such a test is needed on the background variable, years since graduation. For the "Some" group such a test is needed both for age and for years since college graduation.

For the "None" group of pairs of elementary teachers the analysis of covariance was applied to the effect of years since graduation on the Subscore X with a resulting F-ratio of 1.77. Such an F-ratio with 1 and 27 degrees of freedom is not significant. (Nor was the original t-ratio of --1.59 for the mean pair difference on Subscore X). The corrected F-ratio of 1.77 corresponds roughly to a t-ratio of 1.33. This is .26 less in absolute value than the original t-ratio. For purposes of rough estimation,[3] all five of the t-ratios for the "None" group of elementary teachers as reported in Table 9 were reduced by this amount. The reduced average t-ratio was −2.03. When this mean was divided by its standard error (which remained unchanged at 0.42), a new t-ratio of −4.81 was obtained which is still significant at the 1% level of confidence.

The application of analysis of covariance to the case where adjustments are to be made for two background variables is much more complicated from a computational point of view, but it was carried through for age and years since graduation as these were related to Subscore X for the "Some" group of elementary teachers. The resulting F-ratio was 6.94 with 1 and 38 degrees of freedom which is significant at the 5% level of confidence. The corresponding t-ratio would be 2.63. This gives a reduction of .24 from the original t-ratio of −2.87. Were an equal reduction made in the reported t-ratios of the four other subscores, the mean t-ratio for the set would be reduced from −2.99 to −2.75. But the standard error of the mean of the five t-ratios would remain unchanged at .15. This gives a t-ratio of −15.30 for the mean

[3]The increase in accuracy, if any, which might result did not seem to warrant carrying the computations through for every subscore.

of the set of five t-ratios which is still significant at the 1% level of confidence.

*(d) Resolution.* If group equality on the background factors of age and time since graduation is obtained by limiting each variable to a narrow range of two years, the mean pair differences are consistently and significantly in favor of the fully certified teachers. The foregoing analysis also indicates that for the secondary groups any corrections for age and years since graduation, where there was any appreciable degree of mismatching, would actually increase the subscore differences in favor of the fully prepared teachers. For the combined elementary and secondary groups, the correlations of these two background factors with the various effectiveness subscores were so small that no attempt to adjust for errors in matching would be justified.

In the case of the "None" group of pairs of elementary teachers, corrections on Subscore X for mismatching on years since graduation decreased only slightly the significance ratio in favor of the fully prepared, so that the set of five subscore means remained significant at the 1% level of confidence even if the same reduction were made in the t-ratios for the four other subscores. Similarly, joint correction on Subscore X for mismatching on both age and years since graduation in the case of the "Some" group of elementary pairs led to such a minor adjustment that applying it equally to the other subscores would leave the mean t-ratio for the set of five subscores still far above the level required for statistical significance.

This concludes the argument about the central hypothesis of this section. Each of the three approaches to the problem – restricting age and years since graduation to narrow intervals, correlational analysis, and analysis of covariance – points to differences in preparation rather than to differences in age or recency of graduation as accounting for the differences in average ratings of teaching effectiveness.

### *PRINCIPALS' RATINGS*

Two ratings of each beginning teacher by his principal were collected, one near the end of the fall semester and one near the end of the spring semester. The rating scale was the same one used by regular observers for their summary rating.

Because most principals had only one, two or three teachers from their schools in the study, there was no opportunity to make their

ratings comparable by converting them to standard scores as was done for the regular observers. Nor was there an opportunity to discuss the rating form in detail with the principals and try it out together on several teachers as was done for the regular observers during their training periods. Consequently, their ratings were somewhat of an unknown factor because of individual variations in rating practice.

In an attempt to equalize between groups as much as possible the tendency to severe or easy rating, ratings were used only from those principals who had both provisionally certified and fully certified teachers to rate. By a process of matching, first on subject taught, then on sex, and then, if necessary, simply on the proximity of names on the sheet for the school involved, an equal number of provisionally and fully certified teachers were selected for the subsample from each school having some teachers of each type. The teachers thus retained were not matched pairs in the way that the teacher pairs on which the main study was based were matched.

The median of the fall and spring ratings was used as an indication of principal satisfaction with the beginning teachers. The difference between the mean principal's ratings for the provisionally certified and for the fully certified teachers in the groups was small and statistically insignificant. The difference of the means was 0.12 in favor of the fully certified group, but the standard error of the mean difference was 0.31 so that little confidence can be put in the stability of the result.

*SUMMARY*

The original item ratings from the *Classroom Observation Report* were converted into standard scores and certain combinations of these in turn averaged to give five subscores of teaching effectiveness. These subscores were the basic data in terms of which the analyses reported in this chapter were made. They showed a fairly high degree of correlation among themselves and their estimated reliabilities were reasonably adequate for the group use of the subscores made in the study.

The basic comparisons were made in terms of pair differences for matched teachers on subscore averages based on five classroom observations. The comparisons overwhelmingly favored the teachers who had completed the professional sequence of education courses. Almost

without exception the mean pair differences on individual subscores favored the groups of fully prepared teachers and many of these differences were large enough to be statistically significant. This tendency was so strong that when the five subscores were considered as a set the differences were statistically significant in all but one of the group comparisons made.

Investigation of the possible effect of group difference in age and recency of graduation revealed corrections for these factors would be minor and would have little effect on the results, in some comparisons actually increasing the differences in favor of the fully prepared teachers. Ratings by the principals were found to favor slightly the fully prepared teachers but the differences were not large enough for statistical significance.

*Chapter VI*

# SUMMARY AND CONCLUSIONS

## *SUMMARY*

One of the major problems facing education today is that of obtaining enough qualified teachers to keep pace with the expanding school population. While the problem is certainly one of quantity, it is also one of quality. Not only are more teachers needed, but teachers are needed who have the best possible preparation for the job. The nature of the teacher's preparation has been determined more from opinion and philosophical considerations than it has from research into the relative merits of differing kinds of preparation. More research on the problems of teacher education is needed.

This investigation was aimed directly at a specific and, in light of the current practices in issuing emergency certificates, a very practical question about teacher preparation: Does completion of education courses prescribed for certification make any difference in the effectiveness of beginning teachers?

The study was carried on during the school year of 1959–60 in the public schools of three counties in southeastern Florida. Among the white teachers in those counties who were starting their first year of teaching, 76 were found who were on emergency or provisional certificates because they lacked all or part of the prescribed courses in education. These teachers had met all other requirements for certification including general preparation and required work in the teaching major. Forty-two of these teachers had completed at least one course in education but had not completed the full sequence. None of the 42 teachers with partial preparation nor any of the 34 teachers with none of the professional sequence had gone through student teaching. With each of these 76 teachers, who had none or only some of the prescribed sequence of education courses, there was matched another beginning teacher who had met full certification requirements, including the required courses in education.

Each of the 76 provisionally certified teachers was paired with the best match that could be found in a pool of 343 fully certified

beginning white teachers. The over-all success of the matching was judged by comparing the group means on various background factors for the provisionally and for the fully certified teachers. These comparisons were made for various groups of pairs classified according to the extent of professional preparation of the provisionally certified teacher (none, some, or none or some) and also according to the level at which the teachers were working (elementary, secondary, or elementary or secondary).

For each of the nine groupings of pairs, the matching proved to be satisfactory on over-all quality point average, employment interview scores, and credits and quality point average in the teaching field (the latter two factors being applicable to secondary teachers only). Older teachers, and teachers who had been out of college for a number of years before starting to teach, were not sufficient in number among the fully certified beginning teachers to match those found among the provisionally certified teachers. Thus, while it was possible to get fairly good group matching with respect to age for the "None" pairs at the elementary, secondary, and combined levels, there was a fairly substantial difference in age within the "Some" pairs at both elementary and secondary levels. With respect to recency of college graduation, the matching was satisfactory for the "None" group of pairs of secondary teachers, but there were substantial mean pair differences for the "Some" group at the secondary level and for both the "None" and "Some" groups of pairs of elementary teachers.

Judgments of teaching success were made on the basis of five classroom visits during the year to observe the teacher in action. To assist in making these judgments, an observation form, much of it adapted from the *Classroom Observation Record* developed in the Teacher Characteristics Study, was used by the observers. The form was scored to yield five subscores of teaching effectiveness: *Subscore X*, related to understanding, friendly *vs.* aloof, egocentric, restricted teacher behavior; *Subscore Y*, related to responsible, businesslike, systematic *vs.* evading, unplanned, slipshod teacher behavior; *Subscore Z*, related to stimulating, imaginative, surgent or enthusiastic *vs.* dull, routine teacher behavior; *Subscore M*, related to use of appropriate *vs.* inappropriate teaching techniques; and *Subscore S*, an over-all summary rating of teaching effectiveness.

Three types of observers were used for making the judgments of teaching effectiveness. Each teacher was observed twice, once in the

fall semester and once in the spring semester, by an observer with an established career as a professional educator. Eleven such educator observers, whose backgrounds included wide and extensive experience as classroom teachers, college teachers, school principals, superintendents, and state education officials, were used in the study. Each teacher was also observed twice, again once in the fall and once in the spring, by observers drawn from professions other than teaching. There were six members of this group of observers, including a lawyer, an engineer, a physician, a recreation worker, and two case workers trained in social service. In addition to the educator and other professional observers, there was a general observer, a man with a long career as a city superintendent, who during the course of the year observed each teacher in the study.

The observers were not informed of, and in general were not aware of, the specific problem being investigated. Special care was taken to see that the observers did not know about the training backgrounds of the teachers observed.

Each observer underwent a two-day period of training in the use of the observation form before starting the fall series of observations and one additional training observation before starting the spring series of observations.

In order not to add to the anxieties and tensions that might be present during the first year of teaching and to encourage as natural a situation as possible when the observations were made, steps were taken to allay ahead of time any apprehensions the teachers might have about the classroom visits. Before the start of the school year the general nature of the classroom observations was explained to the new teachers. They were assured that the visits were in no way connected with the regular supervisory and evaluative program of the schools and that none of the information about individual teachers that might be developed during the study would be used for other than strictly research purposes. These assurances were repeated by letter at the time of each observation.

Both the observers (in the training periods) and the principals (by letter at the time of each observation) were requested not to discuss the teacher, either as to his background or as to what the observer thought after visiting the classroom.

The analysis of the data on teaching effectiveness was made in terms of pair differences, i.e., the score on a given variable for the provisionally certified teacher minus the score on that variable for the matching fully certified teacher. Group comparisons were primarily made in terms of mean pair differences. The subscores compared were usually an average of subscores derived from the five separate observations, although additional comparisons were made using other combinations of observations, such as the two made by educators, or the two made in the fall semester, etc.

The significance of the mean pair difference for the individual subscores was tested by means of the usual t-ratio, and the tendency for the set of mean pair differences of the five subscores to be different from zero was tested by obtaining a mean of the five t-ratios and testing that mean for significant difference from zero.

*Findings*

With respect to the teachers included in this study, the following facts were established:

(a) On the basis of systematic classroom observations, the fully certified beginning teachers who had completed the prescribed courses in education were consistently and significantly rated by competent observers to be more effective than the provisionally certified teachers who lacked all or part of the sequence in education courses.

When groups were compared on the subscores based on five observations, the mean pair difference for each of the five subscores in each of the nine groups compared favored the fully prepared teachers. For the elementary groups and for the combined elementary and secondary groups almost all (25 out of 30) of the mean pair differences on individual subscores were statistically significant. The set of mean pair differences for the five subscores favored the fully prepared teachers in each of the nine group comparisons and significantly so in all of the groups except one, the "None" group of pairs of secondary teachers.

(b) The differences in rating on teaching effectiveness were associated with differences in professional preparation rather than with differences in background factors such as grades in college, amount of work in the subject taught, interview scores, age, or recency of graduation.

Since some group differences in age and recency of graduation were unavoidable in the matching process, the probable effect that adjustments for these differences might have on the differences in effectiveness subscores favoring the fully trained teachers was investigated. For the secondary teachers the adjustments would tend to increase the difference in ratings in favor of the fully certified. For the elementary teachers, the adjustment would close the gap slightly, but the correction would be so minor as not to affect in any substantial way the statistical significance of the balance in favor of the teachers with the complete sequence of education courses.

(c) The observers from professional fields other than education recognized the superiority of the fully prepared teachers to about the same degree that the educator observers did.

When group comparisons according to the extent of professional preparation were made for the combined elementary and secondary teachers on the subscores based on various combinations of observations, ranging from the one by the general observer to the four without the general observer, the fully prepared teachers again were rated consistently and significantly higher.

(d) The correlations between age and recency of graduation and the effectiveness subscores for the secondary teachers were slight but consistently positive; for the elementary teachers, slight but consistently negative.

(e) Although the fully certified teachers as a group were rated more effective than the provisionally certified teachers as a group, there was overlapping in the two distributions, and some provisionally certified teachers were rated higher than some fully certified ones.

(f) Although the study was not set up to get comparable ratings from the principals as it was to get comparable ratings from the observers, where principals' ratings were available in equal number from provisionally and fully certified teachers assigned to the same school, the mean ratings favored the fully certified teachers, but not sufficiently so to be statistically significant.

## *CONCLUSIONS*

### *Limitations Underlying the Conclusions*

A number of assumptions and limitations are present in the study and, although most have been mentioned and are relatively obvious, some of them are stated explicitly at this point:

(a) The study involved teachers matched on a number of basic factors. Investigation of the factor of the difference in age showed it to be relatively unimportant. Other factors, such as differences in personality, which might have a bearing on the ratings were not measured except through the interview scores which did not reveal significant differences.

(b) The study revolved around the ratings given on the basis of classroom visitations, three-fifths of which were made by observers who were themselves educators and who may have been looking for traits held to be important to educators. The other two-fifths of the visitations were made by observers who were not educators. Although no attempt was made to indoctrinate them, they may have felt the need to put themselves in the frame of reference of educators.

(c) Ratings are always subjective, and in this case not independent. It is possible that the halo effect may be present in all of the five subscores.

(d) The study was restricted to effectiveness during the first year of teaching. For how long whatever differences in effectiveness which have been found would persist, the study does not purport to determine.

(e) The study did not include separate investigation of specific teaching fields such as mathematics, or science, or social studies. Also, group tendencies were studied rather than case studies being made of individual exceptions to the general trend.

(f) The comparisons which were made were between teachers with no or partial professional preparation and teachers with full professional preparation. Comparisons were not made between teachers with no professional preparation and teachers with partial preparation.

*General Conclusion*

The question asked at the beginning of this study was rather simple and direct: Do education courses make a difference? The answer at the close of the study can be equally simple and direct: Yes!

Within the framework of the limitations expressed above, and to the extent that other teachers are similar to the ones included in this study, the following general conclusion seems warranted.

> *Completion of the professional sequence of education courses is reflected in more effective teaching, at least during the first year of teaching.*

*Implications*

Since education courses definitely contribute to more effective teaching, and since the purpose of teacher education is to turn out the the best teachers possible, education courses have a legitimate place in the required program of teacher preparation.

## *SUGGESTIONS FOR FURTHER RESEARCH*

It would be valuable to have a periodic follow-up of the 152 teachers involved in this study to determine their persistence in a teaching career. Do the provisionally certified stay with teaching, or are they transients in the profession? Which teachers leave the profession? And for what reasons? Who stays in the profession – those rated as the more or less effective as first year teachers?

A similar investigation of the rated effectiveness of these teachers after several years of teaching would be most informative. Does the gap between those with and without the education courses close with teaching experience? Is any change in effectiveness simply the result of teaching experience or might it be related to course work taken while teaching?

This study could quite profitably be repeated involving a wider geographic distribution of teachers and also perhaps a larger number. The use of test scores to supplement the ratings, where feasible, would be a desirable addition to the procedure.

## APPENDIX A

## SUPPLEMENTARY TABLES

*Note.* In the tables in this appendix, as elsewhere in this report, a pair consists of a provisionally certified teacher with none or only some of the prescribed sequence of education courses matched with a teacher who has completed the full professional sequence and is fully certified. The pair is designated "None" or "Some" according to the amount of the professional sequence completed by the provisionally certified member of the pair.

The phrase "pair difference" refers to the score of the provisionally certified teacher of a pair on a given variable minus the score of the fully certified teacher on that variable. Thus when pair differences are reported, positive values reflect higher scores by the provisionally certified, negative values reflect higher scores by the fully certified.

The symbol ** indicates significance at the 1% level of confidence, the symbol * indicates significance at the 5% level.

Unless otherwise indicated, subscores are based on the average of five observations. See Chapter III for a description of the subscores.

*Table 18*

**AGE IN YEARS**

**76 Pairs of Beginning Teachers, by Teaching Level and Professional Preparation**

| Age or Statistic | Elementary | | | | | | Secondary | | | | | | Elementary and Secondary | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | None | Full | Some | Full | Prov.[a] | Full | None | Full | Some | Full | Prov.[a] | Full | None | Full | Some | Full | Prov.[a] | Full |
| 20–22 | 2 | 7 | 3 | 11 | 5 | 18 | 2 | 8 | 3 | 12 | 5 | 20 | 4 | 15 | 6 | 23 | 10 | 38 |
| 23–25 | 3 | 1 | 5 | 6 | 8 | 7 | 3 | 3 | 3 | 3 | 6 | 6 | 6 | 4 | 8 | 9 | 14 | 13 |
| 26–28 | 3 | 2 | 6 | 3 | 9 | 5 | 9 | 4 | 5 | 3 | 14 | 7 | 12 | 6 | 11 | 6 | 23 | 12 |
| 29–31 | 3 | – | – | 1 | 3 | 1 | 3 | 1 | 5 | 1 | 8 | 2 | 6 | 1 | 5 | 2 | 11 | 3 |
| 32–34 | 3 | 1 | 2 | – | 5 | 1 | 1 | – | 1 | 1 | 2 | 1 | 4 | 1 | 3 | 1 | 7 | 2 |
| 35–37 | 1 | 2 | 3 | – | 4 | 2 | – | – | 2 | – | 2 | – | 1 | 2 | 5 | – | 6 | 2 |
| 38–40 | | 1 | 1 | – | 1 | 1 | 1 | 1 | – | – | 1 | 1 | 1 | 2 | 1 | – | 2 | 2 |
| 41–43 | | – | – | – | – | | | 1 | 1 | 1 | 1 | 2 | | 1 | 1 | 1 | 1 | 2 |
| 44–46 | | 1 | 1 | | 1 | 1 | | 1 | – | | – | 1 | | 2 | 1 | | 1 | 2 |
| 47–49 | | | | | | | | | – | | – | | | | – | | – | |
| 50–52 | | | | | | | | | 1 | | 1 | | | | 1 | | 1 | |
| Totals | 15 | 15 | 21 | 21 | 36 | 36 | 19 | 19 | 21 | 21 | 40 | 40 | 34 | 34 | 42 | 42 | 76 | 76 |
| Mean | 28.07 | 28.00 | 28.67 | 23.38 | 28.42 | 25.31 | 27.05 | 26.68 | 29.48 | 24.76 | 28.32 | 25.67 | 27.50 | 27.26 | 29.07 | 24.07 | 28.37 | 25.50 |
| Standard Deviation | 4.35 | 7.43 | 6.39 | 2.39 | 5.64 | 5.63 | 3.75 | 7.27 | 7.37 | 5.14 | 6.04 | 6.31 | 4.06 | 7.36 | 6.90 | 4.07 | 5.86 | 6.00 |
| Mean Difference | 0.07 | | 5.29 | | 3.11 | | 0.37 | | 4.71 | | 2.65 | | 9.24 | | 5.00 | | 2.87 | |
| Standard Error of Mean Diff | 1.47 | | 1.32 | | 1.06 | | 1.69 | | 1.63 | | 1.21 | | 1.13 | | 1.03 | | 0.80 | |
| t-ratio | 0.05 | | 4.02** | | 2.93** | | 0.22 | | 2.90** | | 2.20* | | 0.21 | | 4.84** | | 3.57** | |

[a] Provisional includes both None and Some.

*Table 19*

**TIME IN YEARS SINCE COLLEGE GRADUATION**

**76 Pairs of Beginning Teachers, by Teaching Level and Professional Preparation**

| Years Since Graduation | Elementary | | | | | | Secondary | | | | | | Elementary and Secondary | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | None | Full | Some | Full | Prov.[a] | Full | None | Full | Some | Full | Prov.[a] | Full | None | Full | Some | Full | Prov.[a] | Full |
| 0 | 7 | 13 | 8 | 20 | 15 | 33 | 3 | 14 | 9 | 18 | 12 | 32 | 10 | 27 | 17 | 38 | 27 | 65 |
| 1 | 1 | – | 2 | 1 | 3 | 1 | 5 | 3 | 3 | – | 8 | 3 | 6 | 3 | 5 | 1 | 11 | 4 |
| 2 | 1 | – | 3 | | 4 | – | 2 | – | 1 | – | 3 | – | 3 | – | 4 | – | 7 | – |
| 3 | – | 1 | – | | – | 1 | – | – | 1 | 2 | 1 | 2 | – | 1 | 1 | 2 | 1 | 3 |
| 4 | 1 | – | 1 | | 2 | – | 1 | – | 1 | – | 2 | – | 2 | – | 2 | – | 4 | – |
| 5–9 | 3 | 1 | 2 | | 5 | 1 | 6 | – | 3 | 1 | 9 | 1 | 9 | 1 | 5 | 1 | 14 | 2 |
| 10–14 | – | | 2 | | 2 | | 1 | – | – | | 1 | – | 1 | – | 2 | | 3 | – |
| 15–19 | – | | 3 | | 3 | | 1 | 1 | 1 | | 2 | 1 | 1 | 1 | 4 | | 5 | 1 |
| 20–24 | 1 | | | | 1 | | | 1 | 1 | | 1 | 1 | 1 | 1 | 1 | | 2 | 1 |
| 25–29 | – | | | | – | | | | – | | – | | – | | – | | – | |
| 30–34 | 1 | | | | 1 | | | | 1 | | 1 | | 1 | | 1 | | 2 | |
| Totals | 15 | 15 | 21 | 21 | 36 | 36 | 19 | 19 | 21 | 21 | 40 | 40 | 34 | 34 | 42 | 42 | 76 | 76 |
| Mean | 4.67 | 0.07 | 4.57 | 0.05 | 4.61 | 0.06 | 3.63 | 2.42 | 4.76 | 0.62 | 4.22 | 1.47 | 4.09 | 1.38 | 4.67 | 0.33 | 4.41 | 0.80 |
| Standard Deviation | 3.52 | 0.50 | 5.75 | 0.42 | 4.94 | 0.56 | 3.86 | 6.60 | 7.92 | 1.69 | 6.34 | 4.77 | 3.76 | 5.06 | 6.94 | 1.14 | 5.75 | 3.53 |
| Mean Difference | 4.60 | | 4.52 | | 4.56 | | 1.21 | | 4.14 | | 2.75 | | 2.71 | | 4.33 | | 3.61 | |
| Standard Error of Mean Diff. | 0.95 | | 1.30 | | 0.84 | | 1.49 | | 1.55 | | 1.09 | | 0.96 | | 1.00 | | 0.70 | |
| t-ratio | 4.86** | | 3.49** | | 5.42** | | 0.81 | | 2.67* | | 2.52* | | 2.81** | | 4.33** | | 5.14** | |

[a] Provisional includes both None and Some.

*Table 20*

**QUALITY POINT AVERAGE IN CERTIFICATION MAJOR**

**76 Pairs of Beginning Teachers, by Teaching Level and Professional Preparation**

| Teaching Level and Professional Preparation | N | Certification Status: Provisional M | Provisional SD | Full M | Full SD | Pair Differences: M | SE | t |
|---|---|---|---|---|---|---|---|---|
| **Elementary** | | | | | | | | |
| None | 15 | 1.53 | 0.47 | 1.64 | 0.43 | –0.11 | 0.10 | –1.12 |
| Some | 21 | 1.69 | 0.51 | 1.77 | 0.35 | –0.07 | 0.12 | –0.62 |
| None or Some | 36 | 1.62 | 0.50 | 1.71 | 0.39 | –0.09 | 0.08 | –1.11 |
| **Secondary** | | | | | | | | |
| None | 19 | 1.58 | 0.60 | 1.70 | 0.51 | –0.12 | 0.16 | –0.72 |
| Some | 21 | 1.86 | 0.53 | 1.70 | 0.47 | 0.16 | 0.11 | 1.55 |
| None or Some | 40 | 1.73 | 0.59 | 1.70 | 0.49 | 0.03 | 0.10 | 0.32 |
| **Elementary and Secondary** | | | | | | | | |
| None | 34 | 1.56 | 0.55 | 1.67 | 0.47 | –0.11 | 0.10 | –1.15 |
| Some | 42 | 1.78 | 0.53 | 1.73 | 0.41 | 0.04 | 0.08 | 0.55 |
| None or Some | 76 | 1.68 | 0.55 | 1.70 | 0.44 | –0.03 | 0.06 | –0.42 |

*Table 21*

**INTERVIEW SCORES**

**67 Pairs of Beginning Teachers, by Teaching Level and Professional Preparation**

| Teaching Level and Professional Preparation | N | Certification Status: Provisional M | Provisional SD | Full M | Full SD | Pair Differences: M | SE | t |
|---|---|---|---|---|---|---|---|---|
| **Elementary** | | | | | | | | |
| None | 14 | 30.57 | 2.53 | 30.36 | 3.68 | 0.21 | 1.20 | 0.18 |
| Some | 19 | 30.37 | 1.88 | 30.32 | 2.20 | 0.05 | 0.76 | 0.07 |
| None or Some | 33 | 30.46 | 2.17 | 30.33 | 2.92 | 0.12 | 0.66 | 0.18 |
| **Secondary** | | | | | | | | |
| None | 14 | 31.07 | 0.72 | 31.29 | 0.69 | –0.21 | 0.19 | –1.14 |
| Some | 20 | 29.05 | 2.31 | 30.00 | 1.30 | –0.95 | 0.67 | –1.42 |
| None or Some | 34 | 29.88 | 2.09 | 30.53 | 1.28 | –0.65 | 0.40 | –1.61 |
| **Elementary and Secondary** | | | | | | | | |
| None | 28 | 30.82 | 1.88 | 30.82 | 2.69 | 0.00 | 0.60 | 0.00 |
| Some | 39 | 29.69 | 2.21 | 30.15 | 1.80 | –0.46 | 0.51 | –0.91 |
| None or Some | 67 | 30.16 | 2.15 | 30.43 | 2.24 | –0.27 | 0.38 | –0.70 |

*Table 22*

**HOW I TEACH SCORES**
**67 Pairs of Beginning Teachers, by Teaching Level and Professional Preparation**

| Teaching Level and Professional Preparation | N | Certification Status: Provisional M | Provisional SD | Full M | Full SD | Pair Difference: M | SE | t |
|---|---|---|---|---|---|---|---|---|
| **Elementary** | | | | | | | | |
| None | 14 | 4.36 | 1.76 | 7.29 | 1.83 | −2.93 | 0.78 | −3.76** |
| Some | 19 | 4.58 | [illegible] | 6.68 | 1.98 | −2.11 | 0.75 | −2.83* |
| None or Some | 33 | 4.49 | | 6.94 | 1.94 | −2.46 | 0.54 | −4.56** |
| **Secondary** | | | | | | | | |
| None | 14 | 4.43 | 2.41 | 6.07 | 2.09 | −1.64 | 0.88 | −1.86 |
| Some | 20 | 6.25 | 2.55 | 6.20 | 2.48 | 0.05 | 0.62 | 0.08 |
| None or Some | 34 | 5.50 | 2.65 | 6.15 | 2.33 | −0.65 | 0.53 | −1.23 |
| **Elementary and Secondary** | | | | | | | | |
| None | 28 | 4.39 | 2.11 | 6.68 | 2.05 | −2.29 | 0.59 | −3.87** |
| Some | 39 | 5.44 | 2.68 | 6.44 | 2.26 | −1.00 | 0.51 | −1.97 |
| None or Some | 67 | 5.00 | 2.51 | 6.54 | 2.18 | −1.54 | 0.39 | −3.94** |

*Table 23*

CLASSROOM OBSERVATIONS, BY TYPE OF OBSERVER, TEACHING LEVEL AND PROFESSIONAL PREPARATION OF TEACHER OBSERVED

| Observer, Type and Number | Elementary | | | Secondary | | | Elementary and Secondary | | | Total Teachers Observed |
|---|---|---|---|---|---|---|---|---|---|---|
| | None | Some | Full | None | Some | Full | None | Some | Full | |
| **General** | | | | | | | | | | |
| 1 | 15 | 21 | 37* | 19 | 21 | 40 | 34 | 42 | 77* | 153* |
| **Educator** | | | | | | | | | | |
| 2 | 10 | 8 | 18 | 1 | 2 | 3 | 11 | 10 | 21 | 42 |
| 3** | 2 | 4 | 6 | 1 | 1 | 2 | 3 | 5 | 8 | 16 |
| 4 | 8 | 13 | 18 | – | – | 1 | 8 | 13 | 19 | 40 |
| 5 | – | – | – | 8 | 5 | 14 | 8 | 5 | 14 | 27 |
| 6 | 3 | 10 | 14 | – | – | – | 3 | 10 | 14 | 27 |
| 7 | – | – | – | 9 | 13 | 21 | 9 | 13 | 21 | 43 |
| 8 | – | – | 1 | 8 | 10 | 19 | 8 | 10 | 20 | 38 |
| 9 | 7 | 6 | 12 | – | – | – | 7 | 6 | 12 | 25 |
| 10 | – | – | – | 7 | 9 | 15 | 7 | 9 | 15 | 31 |
| 32 | – | 1 | 1 | 2 | – | 2 | 2 | 1 | 3 | 6 |
| 33 | – | – | 1 | 2 | 2 | 3 | 2 | 2 | 4 | 8 |
| Sub Total | 30 | 42 | 71* | 38 | 42 | 80 | 68 | 84 | 151* | 303* |
| **Other Professionals** | | | | | | | | | | |
| 21 | 8 | 15 | 23 | 1 | – | 1 | 9 | 15 | 24 | 48 |
| 22 | 13 | 12 | 27 | – | 1 | – | 13 | 13 | 27 | 53 |
| 23 | 9 | 15 | 22 | 3 | – | 5 | 12 | 15 | 27 | 54 |
| 24 | – | – | – | 14 | 15 | 29 | 14 | 15 | 29 | 58 |
| 25 | – | – | – | 13 | 16 | 29 | 13 | 16 | 29 | 58 |
| 26 | – | – | – | 7 | 10 | 16 | 7 | 10 | 16 | 33 |
| Sub Total | 30 | 42 | 72 | 38 | 42 | 80 | 68 | 84 | 152 | 304 |
| Grand Total | 75 | 105 | 180 | 95 | 105 | 200 | 170 | 210 | 380 | 760 |

*Because of scheduling difficulties, the general observer made one extra observation classified as being by an Educator.

**Participated in fall observations only.

*Table 24*

**EFFECTIVENESS SUBSCORES**

**36 Pairs of Beginning Elementary Teachers, by Professional Preparation**

| Professional Preparation and Subscore or Statistic | Certification Status: Provisional M | Provisional SD | Full M | Full SD | Pair Differences: M | SE | t |
|---|---|---|---|---|---|---|---|
| **None (N=15)** | | | | | | | |
| X | 478.47 | 52.98 | 505.40 | 53.75 | −26.93 | 16.99 | −1.59 |
| Y | 485.67 | 51.58 | 507.07 | 48.38 | −21.40 | 16.67 | −1.28 |
| Z | 467.87 | 48.09 | 517.53 | 51.92 | −49.67 | 16.50 | −3.01** |
| M | 480.73 | 59.93 | 519.13 | 42.97 | −38.40 | 18.45 | −2.08 |
| S | 463.20 | 63.19 | 518.53 | 50.40 | −55.33 | 15.78 | −3.51** |
| Mean of 5 t-ratios | | | | | | | −2.29 |
| Standard error of mean of 5 t-ratios | | | | | | | 0.42 |
| t-ratio of mean of 5 t-ratios | | | | | | | −5.44** |
| **Some (N=21)** | | | | | | | |
| X | 474.76 | 57.92 | 527.38 | 61.16 | −52.62 | 18.34 | −2.87** |
| Y | 476.00 | 55.38 | 518.86 | 60.25 | −42.86 | 17.11 | −2.51* |
| Z | 477.33 | 51.92 | 528.67 | 51.89 | −51.33 | 16.09 | −3.19** |
| M | 479.48 | 55.86 | 527.19 | 47.72 | −47.71 | 15.92 | −3.00** |
| S | 467.52 | 65.15 | 537.05 | 63.40 | −69.52 | 20.47 | −3.40** |
| Mean of 5 t-ratios | | | | | | | −2.99 |
| Standard error of mean of 5 t-ratios | | | | | | | 0.15 |
| t-ratio of mean of 5 t-ratios | | | | | | | −19.89** |
| **None or Some (N=36)** | | | | | | | |
| X | 476.31 | 55.93 | 518.22 | 59.20 | −41.92 | 12.84 | −3.27** |
| Y | 480.03 | 54.03 | 513.94 | 55.95 | −33.92 | 12.13 | −2.80** |
| Z | 473.39 | 50.57 | 524.03 | 52.18 | −50.64 | 11.48 | −4.41** |
| M | 480.00 | 57.60 | 523.83 | 45.98 | −43.83 | 11.91 | −3.68** |
| S | 465.72 | 64.38 | 529.33 | 59.06 | −63.61 | 13.51 | −4.71** |
| Mean of 5 t-ratios | | | | | | | −3.77 |
| Standard error of mean of 5 t-ratios | | | | | | | 0.35 |
| t-ratio of mean of 5 t-ratios | | | | | | | −10.69** |

*Table 25*

**EFFECTIVENESS SUBSCORES**

**40 Pairs of Beginning Secondary Teachers, by Professional Preparation**

| Professional Preparation and Subscore or Statistic | Certification Status: Provisional M | Provisional SD | Full M | Full SD | Pair Differences: M | SE | t |
|---|---|---|---|---|---|---|---|
| **None (N = 19)** | | | | | | | |
| X | 496.16 | 46.69 | 498.84 | 53.98 | – 2.68 | 13.73 | –0.20 |
| Y | 498.21 | 36.23 | 502.84 | 60.04 | – 4.63 | 16.34 | –0.28 |
| Z | 481.00 | 31.80 | 509.95 | 48.71 | –28.95 | 14.27 | –2.03* |
| M | 475.84 | 31.45 | 500.74 | 50.20 | –24.89 | 13.33 | –1.87 |
| S | 487.26 | 38.07 | 496.63 | 74.92 | – 9.37 | 19.05 | –0.49 |
| Mean of 5 t-ratios | | | | | | | –0.97 |
| Standard error of mean of 5 t-ratios | | | | | | | 0.40 |
| t-ratio of mean of 5 t-ratios | | | | | | | –2.42 |
| **Some (N = 21)** | | | | | | | |
| X | 507.71 | 46.96 | 510.19 | 43.62 | – 2.48 | 16.43 | –0.15 |
| Y | 494.14 | 64.39 | 519.24 | 37.72 | –25.10 | 19.13 | –1.31 |
| Z | 499.38 | 69.23 | 513.05 | 37.48 | –13.67 | 19.83 | –0.69 |
| M | 490.86 | 61.95 | 519.76 | 30.85 | –28.90 | 17.10 | –1.69 |
| S | 493.90 | 75.98 | 529.14 | 45.34 | –35.24 | 20.86 | –1.69 |
| Mean of 5 t-ratios | | | | | | | –1.11 |
| Standard error of mean of 5 t-ratios | | | | | | | 0.30 |
| t-ratio of mean of 5 t-ratios | | | | | | | –3.68* |
| **None or Some (N = 40)** | | | | | | | |
| X | 502.23 | 47.15 | 504.80 | 49.14 | – 2.58 | 10.68 | –0.24 |
| Y | 496.08 | 52.92 | 511.45 | 50.26 | –15.38 | 12.64 | –1.22 |
| Z | 490.65 | 55.50 | 511.58 | 43.19 | –20.93 | 12.33 | –1.70 |
| M | 483.73 | 50.39 | 510.73 | 42.24 | –27.00 | 10.85 | –2.49* |
| S | 490.75 | 61.06 | 513.70 | 63.31 | –22.95 | 14.18 | –1.62 |
| Mean of 5 t-ratios | | | | | | | –1.45 |
| Standard error of mean of 5 t-ratios | | | | | | | 0.37 |
| t-ratio of mean of 5 t-ratios | | | | | | | –3.97* |

*Table 26*

**EFFECTIVENESS SUBSCORES**

**76 Pairs of Beginning Elementary and Secondary Teachers, by Professional Preparation**

| Professional Preparation and Subscore or Statistic | Certification Status: Provisional M | Provisional SD | Full M | Full SD | Pair Differences: M | SE | t |
|---|---|---|---|---|---|---|---|
| **None (N=34)** | | | | | | | |
| X | 488.35 | 50.37 | 501.74 | 53.95 | −13.38 | 10.77 | −1.24 |
| Y | 492.68 | 44.10 | 504.71 | 55.22 | −12.03 | 11.64 | −1.03 |
| Z | 475.21 | 40.33 | 513.29 | 50.31 | −38.09 | 10.78 | −3.53** |
| M | 478.00 | 46.28 | 508.85 | 48.04 | −30.85 | 10.92 | −2.83** |
| S | 476.65 | 52.08 | 506.29 | 66.15 | −29.65 | 13.15 | −2.25* |
| Mean of 5 t-ratios | | | | | | | −2.18 |
| Standard error of mean of 5 t-ratios | | | | | | | 0.47 |
| t-ratio of mean of 5 t-ratios | | | | | | | −4.61** |
| **Some (N=42)** | | | | | | | |
| X | 491.24 | 55.22 | 518.79 | 53.79 | −27.55 | 12.78 | −2.16* |
| Y | 485.07 | 60.73 | 519.05 | 50.26 | −33.98 | 12.75 | −2.67* |
| Z | 488.36 | 62.16 | 520.86 | 45.93 | −32.50 | 12.95 | −2.51* |
| M | 485.17 | 59.26 | 523.48 | 40.32 | −38.31 | 11.63 | −3.29** |
| S | 480.71 | 71.99 | 533.10 | 55.23 | −52.38 | 14.68 | −3.57** |
| Mean of 5 t-ratios | | | | | | | −2.84 |
| Standard error of mean of 5 t-ratios | | | | | | | 0.26 |
| t-ratio of mean of 5 t-ratios | | | | | | | −10.99** |
| **None or Some (N=76)** | | | | | | | |
| X | 489.95 | 53.11 | 511.16 | 54.54 | −21.21 | 8.53 | −2.49* |
| Y | 488.47 | 54.08 | 512.63 | 53.04 | −24.16 | 8.80 | −2.75** |
| Z | 482.47 | 53.93 | 517.47 | 48.10 | −35.00 | 8.58 | −4.08** |
| M | 481.96 | 53.97 | 516.93 | 44.57 | −34.97 | 8.03 | −4.35** |
| S | 478.89 | 63.90 | 521.11 | 61.80 | −42.21 | 10.04 | −4.20** |
| Mean of 5 t-ratios | | | | | | | −3.57 |
| Standard error of mean of 5 t-ratios | | | | | | | 0.39 |
| t-ratio of mean of 5 t-ratios | | | | | | | −9.07** |

*Table 27*

**CORRELATION COEFFICIENTS**
**BETWEEN EFFECTIVENESS SUBSCORES AND VARIOUS BACKGROUND FACTORS**
for 66 Elementary and 68 Secondary Beginning Teachers, by Professional Preparation

| Background Factors and Teaching Level | Subscores X | Y | Z | M | S |
|---|---|---|---|---|---|
| **Quality Point Average** | | | | | |
| Elementary | .13 | .11 | .16 | .11 | .18 |
| Secondary | .00 | −.03 | .14 | .07 | .11 |
| Both Levels | .07 | .04 | .14 | .07 | .14 |
| **Credits in Teaching Field** | | | | | |
| Secondary | −.02 | −.02 | −.06 | −.15 | −.05 |
| **QPA in Teaching Field** | | | | | |
| Secondary | .09 | .00 | .12 | .08 | .07 |
| **Employment Interview Score** | | | | | |
| Elementary | −.04 | −.11 | −.04 | −.10 | −.09 |
| Secondary | −.22 | −.21 | −.19 | −.18 | −.20 |
| Both Levels | −.10 | −.15 | −.10 | −.13 | −.13 |
| **Age in Years** | | | | | |
| Elementary | −.10 | −.07 | −.13 | −.17 | −.07 |
| Secondary | .27* | .16 | .19 | .20 | .16 |
| Both Levels | .06 | .05 | .03 | .01 | .04 |
| **Years Since Graduation** | | | | | |
| Elementary | −.28* | −.23 | −.29* | −.23 | −.32** |
| Secondary | .25* | .13 | .13 | .09 | .10 |
| Both Levels | .01 | −.03 | −.05 | −.06 | −.08 |
| **How I Teach Scores** | | | | | |
| Elementary | .21 | .12 | .20 | .21 | .30** |
| Secondary | .05 | −.01 | .07 | .04 | −.03 |
| Both Levels | .14 | .05 | .13 | .12 | .14 |

*Table 28*

**SEX OF BEGINNING TEACHERS**

**76 Pairs, by Teaching Level and Professional Preparation**

| Sex or Statistic | Elementary | | | | | | Secondary | | | | | | Elementary and Secondary | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | None | Full | Some | Full | Prov.[a] | Full | None | Full | Some | Full | Prov.[a] | Full | None | Full | Some | Full | Prov.[a] | Full |
| Male | 9 | 5 | 5 | 3 | 14 | 8 | 12 | 8 | 11 | 6 | 23 | 14 | 21 | 13 | 16 | 9 | 37 | 22 |
| Female | 6 | 10 | 16 | 18 | 22 | 28 | 7 | 11 | 10 | 15 | 17 | 26 | 13 | 21 | 26 | 33 | 39 | 54 |
| Total | 15 | 15 | 21 | 21 | 36 | 36 | 19 | 19 | 21 | 21 | 40 | 40 | 34 | 34 | 42 | 42 | 76 | 76 |
| % Males | 60.0 | 33.3 | 23.8 | 14.3 | 38.9 | 22.2 | 63.2 | 42.1 | 52.4 | 28.6 | 57.5 | 35.0 | 61.8 | 38.2 | 38.1 | 21.4 | 48.7 | 28.9 |
| Difference | 26.7 | | 9.5 | | 16.7 | | 21.1 | | 23.8 | | 22.5 | | 23.6 | | 16.7 | | 19.8 | |

[a] Provisional includes both None and Some.

## APPENDIX B

## SAMPLE FORMS

1. *Classroom Observation Report*
2. Letter to Principals
3. Letter to Teachers

# APPENDIX B

School of Education
University of Miami

Study of Beginning Teachers

CLASSROOM OBSERVATION REPORT*

| | | |
|---|---|---|
| 1. Apathetic | 1 2 3 4 5 6 7 N | Alert |
| Pupils were inattentive; showed evidence of wandering attention; indifferent to teacher. | | Pupils responded eagerly; appeared anxious to recite and participate. |
| Pupils were listless; spiritless. | | Pupils watched teacher attentively when explanation was being made. |
| Pupils were restless. | | Pupils worked concentratedly, appeared immersed in their work. |
| Pupils participated half-heartedly assumed a "don't care attitude." | | Pupils were prompt and ready to take part in activities. |

| | | |
|---|---|---|
| 2. Obstructive | 1 2 3 4 5 6 7 N | Responsible |
| Pupils were rude to teacher and to each other. | | Pupils finished work assigned without complaint; demonstrated their accomplishments. |
| Pupils interrupted one another; were impatient. | | Pupils controlled voices. |
| Pupils were noisy; disturbing. | | Pupils were courteous, friendly, and cooperative with teacher and with each other. |
| Pupils were obstinate; refused to participate in class activities. | | Pupils received criticism attentively. |
| Pupils were quarrelsome; disgruntled; irritable; sullen. | | Pupils demonstrated initiative, but sought help freely when necessary. |
| Pupils demanded attention; appeared selfish; waved hands constantly. | | Pupils were orderly without specific directions from teacher. |
| Pupils engaged in name-calling or "tattling." | | Pupils were patient. |

* Adapted by permission from Ryans' Teacher Characteristics Study

| 3. Uncertain | 1 2 3 4 5 6 7 N | Confident |
|---|---|---|
| Pupils were afraid to try. | | Pupils were willing to try new problems or activities. |
| Pupils were unsure of themselves; hesitant. | | Pupils were undisturbed by mistakes. |
| Pupils appeared embarrassed. | | Pupils entered freely into activities. |
| Pupils were shy or timid. | | Pupils appeared to be relaxed. |
| Pupils showed tenseness and nervous habits; nail biting; pencil biting. | | Pupils spoke with assurance. |

| 4. Dependent | 1 2 3 4 5 6 7 N | Initiating |
|---|---|---|
| Pupils relied on teacher for explicit directions. | | Pupils volunteered ideas and made suggestions for further studies. |
| Pupils showed little ability to work things out for selves; unable to proceed when initiative called for. | | Pupils gave evidence of original thinking; were resourceful. |
| Pupils were reluctant to take lead. | | Pupils took the lead willingly. |
| Pupils were reluctant to accept responsibility. | | Pupils assumed responsibility. |

| 5. Partial | 1 2 3 4 5 6 7 N | Fair |
|---|---|---|
| Teacher slighted a pupil. | | All pupils were treated equally. |
| Teacher corrected or criticized certain pupils excessively. | | Teacher demonstrated freedom from prejudice toward social, racial, and religious groups. |
| Teacher gave a pupil special advantages. | | In case of controversy, pupil was allowed to explain his side. |
| Teacher gave most attention to one or a few pupils. | | Teacher distributed attention to many pupils. |
| Teacher showed bias or prejudice (favorable or unfavorable) toward some social, racial, or religious groups. | | Teacher rotated leadership impartially. |
| Teacher showed suspicion of motives of a pupil. | | Criticism or praise was based on factual evidence, not hearsay. |

| 6. Autocratic | 1 2 3 4 5 6 7 N | Democratic |
|---|---|---|
| Teacher gave "long Distance directions" to pupils; frequently "laid down the law." | | Teacher entered into pupils' activities without domination. |
| Teacher told pupils each step to take. | | Teacher exchanged ideas with pupils. |
| Teacher was intolerant of ideas or suggestions made by pupils. | | Teacher encouraged pupils to make own decisions. |
| Teacher was mandatory in giving directions, gave orders to be obeyed at once. | | Teacher guided pupils and made suggestions without being mandatory. |
| Teacher interrupted pupils. | | Teacher asked opinions of pupils. |
| Teacher insisted on strict order at all times. | | Teacher requested criticism of explanations or demonstrations. |

| 7. Aloof | 1 2 3 4 5 6 7 N | Responsive |
|---|---|---|
| Teacher was stiff and formal in relations with a child. | | Teacher was approachable to all pupil |
| Teacher seemed removed from the group; not a part of the activity. | | Teacher was warm in contacts with pupils. |
| Teacher was condescending to a pupil. | | Teacher spoke to a child as to an equal. |
| Teacher referred to a pupil as "This child" or "that child". | | Teacher was tactful in relations with pupils. |
| Teacher was tactless. | | |

| 8. Restricted | 1 2 3 4 5 6 7 N | Understanding |
|---|---|---|
| Teacher recognized only academic accomplishments of pupils; no concern for personal problems. | | Teacher showed awareness of a pupil's emotional problems and needs. |
| Teacher showed little recognition of individual differences in ability and in feelings of pupils. | | Teacher was alert to differences in individual ability. |
| Teacher was not sympathetic with a pupil's failure at a task. | | Teacher was tolerant of error on the part of a pupil. |
| Teacher called attention only to very good or very poor work. | | Teacher was patient with a pupil beyond the ordinary limits of patience. |
| Teacher showed no affection for pupils. | | Teacher showed sympathy with a pupil's viewpoint. |
| Teacher was impatient with a pupil. | | Teacher showed affection for a pupil (without) being unduly demonstrative or gushy. |

9. Harsh 1 2 3 4 5 6 7 N Kindly

Teacher was hypercritical; faultfinding.

Teacher ridiculed the behavior of a pupil; was sarcastic; depreciated child's efforts.

Teacher used threats.

Teacher lost temper; was cross.

Teacher permitted pupils to laugh at mistakes of others.

Teacher gave a pupil a deserved compliment.

Teacher was courteous and friendly with pupils at all times.

Teacher found good things to call attention to in pupils.

Teacher disengaged self from a pupil without bluntness.

Teacher was considerate of pupil's feelings.

---

10. Dull 1 2 3 4 5 6 7 N Stimulating

Teacher seemed blunt; uninteresting; obtuse; was monotonous in presentation of materials.

Teacher failed to challenge or stimulate pupils.

Teacher lacked animation.

Teacher disregarded pupil interests.

Teacher seemed to challenge and stimulate pupils to do better work; was highly interesting in presentation of materials.

Teacher was clever and witty (not smart alecky or wise-cracking).

Teacher was animated.

Teacher brought lessons successfully to a climax, relating them to major objectives.

---

11. Stereotyped 1 2 3 4 5 6 7 N Original

Teacher used routine procedures which were not effective.

Teacher showed no variation in language or procedure under varying conditions.

Teacher failed to take advantage of a question or a situation to further develop the classes' understanding of a problem.

Teacher lacked imagination in developing ideas; unoriginal in thought.

Teacher showed initiative in taking a new approach.

Teacher showed resourcefulness in making an explanation or demonstration.

Teacher used original, interesting and sometimes relatively unique devices to aid instruction.

Teacher showed evidence of imagination and independence in thought.

12. Apathetic 1 2 3 4 5 6 7 N Alert

Teacher seemed listless; lacked enthusiasm.

Teacher seemed bored by pupils; was passive in response to pupils.

Teacher was preoccupied; attention seemed to wander.

Teacher was inactive; sat in chair most of time, etc.

Teacher appeared buoyant; wide-awake was enthusiastic.

Teacher was constructively busy.

Teacher was interested in what was going on in class; took lead in thinking.

Teacher was prompt to "pick-up" class when pupils attention showed signs of lagging.

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13. Unimpressive 1 2 3 4 5 6 7 N Attractive

Teacher was untidy or sloppily dressed.

Teacher was inappropriately dressed; drab, colorless.

Teacher's posture and bearing was unattractive.

Teacher possessed distracting personal habits.

Teacher's voice had disagreeable tone and uninteresting inflection.

Teacher was neat and clean.

Teacher's dress showed good taste.

Teacher's posture and bearing was attractive.

Teacher possessed personal charm; free from distracting personal habits.

Teacher's voice had agreeable tone and interesting inflection.

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14. Evading 1 2 3 4 5 6 7 N Responsible

Teacher shunned responsibility; was reluctant to make a decision; "passed the buck."

Teacher left learning up to the individual child without giving adequate help.

Teacher let a difficult situation get out of control.

Teacher's assignments were indefinite; did not give adequate direction.

Teacher was not insistent upon standards of quality.

Teacher was willing to take responsibility; was conscientious; punctual.

Teacher suggested aids to learning; provided "study hints."

Teacher controlled difficult situations.

Teacher's assignments were definite; gave adequate direction.

Teacher insisted on standards of quality.

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15. Erratic 1 2 3 4 5 6 7 N Steady

Teacher was impulsive; uncontrolled; temperamental; unsteady.

Teacher was swayed by circumstances of the moment.

Teacher's behavior was inconsistent.

Teacher's behavior was decisive, calm, controlled.

Teacher's behavior with pupils was stable and predictable.

Teacher's behavior was consistent.

| 16. Excitable | 1 2 3 4 5 6 7 N | Poised |
|---|---|---|
| Teacher was easily disturbed and distracted. | | Teacher seemed at ease at all times. |
| Teacher was flustered by classroom problems, lacked dignity. | | Teacher was unruffled by problems developing in the classroom; was dignified without being stiff or formal. |
| Teacher was hurried in class activities; spoke rapidly using many words and gestures. | | Teacher successfully diverted attention from a stress situation in the classroom. |
| Teacher had nervous habits; was "jumpy". | | Teacher was unhurried in class activities; spoke quietly and slowly. |

| 17. Uncertain | 1 2 3 4 5 6 7 N | Confident |
|---|---|---|
| Teacher seemed unsure of self in a situation; faltering, hesitant. | | Teacher was sure of self; seemed self-confident in relations with pupils. |
| Teacher seemed timid and shy; was artificial. | | Teacher accepted criticism but was undisturbed and unembarrassed by it. |
| Teacher was disturbed and embarrassed by criticism. | | Teacher had classroom situations under control at all times. |

| 18. Disorganized | 1 2 3 4 5 6 7 N | Systematic |
|---|---|---|
| Teacher showed no evidence of plan for classwork; poorly prepared. | | Teacher gave evidence of careful planning (though procedure was flexible enough to permit adaptations); well-prepared. |
| Teacher seemed undecided what to do next; did not work toward objectives. | | Teacher anticipated needs and problems that might arise and was prepared for them. |
| Teacher wasted time. | | Teacher successfully held discussion together; worked toward objectives. |
| Teacher was careless and slipshod in explanations. | | Teacher provided for review and properly spaced learning. |

| 19. Inflexible | 1 2 3 4 5 6 7 N | Adaptable |
|---|---|---|
| Teacher was rigid in conforming to routine. | | Teacher was flexible in adapting explanations and activities to pupil needs. |
| Teacher made no attempt to adapt materials to a pupil. | | Teacher individualized materials for a pupil. |
| Teacher was incapable of modifying explanations or activities to meet particular situations in the classroom. | | Teacher took advantage of pupils' questions to further clarify ideas. |
| Teacher was impatient with interruptions in or digressions from the usual classroom situation. | | Teacher met an unusual classroom situation competently. |

| 20. Pessimistic | 1 2 3 4 5 6 7 N | Optimistic |
|---|---|---|
| Teacher was depressed; seemed unhappy. | | Teacher was cheerful and good-natured. |
| Teacher appeared to see and call attention to potential bad; was skeptical. | | Teacher appeared to see and emphasize potential good. |
| Teacher was critical of the school, the school system, or the principal. | | Teacher joked with pupils on occasion. |
| Teacher called attention to and emphasized mistakes and errors. | | Teacher called attention to and emphasized good work. |
| Teacher frowned most of the time; had unpleasant facial expression; was irritable. | | Teacher spoke of future optimistically. |

| 21. Immature | 1 2 3 4 5 6 7 N | Integrated |
|---|---|---|
| Teacher was unrealistic in approach; naive. | | Teacher was realistic in approach; showed good common sense. |
| Teacher was self-pitying, complaining, demanding; indicated envy or jealousy. | | Teacher did not speak of self but of pupil's activities. |
| Teacher was boastful and conceited. | | Teacher was well-controlled emotionally; natural in manner. |
| Teacher lacked sense of humor. | | Teacher possessed good sense of humor. |

| 22. Narrow | 1 2 3 4 5 6 7 N | Broad |
|---|---|---|
| Teacher showed evidence of limited background in subject or material; seemed to lack scholarship. | | Teacher showed good background in subject; seemed scholarly. |
| Teacher did not depart from text. | | Teacher drew examples and explanations from various sources and related fields. |
| Teacher failed to enrich discussions with illustrations from related areas. | | Teacher showed evidence of broad cultural background (art, science, literature, history). |
| Teacher showed little evidence of breadth of cultural background (arts, science, literature, and history). | | Teacher gave complete, accurate and satisfying answers to questions. |
| Teacher's answers to a pupil's questions were incomplete or inaccurate. | | Teacher was constructively critical in approach to subject-matter. |
| Teacher did not approach subject-matter critically. | | Teacher was skilled and fluent in expression. |
| Teacher was hesitant or limited in expression. | | |

23. The Teacher helps the pupils develop understanding, knowledge, and skills.

1 2 3 4 5 6 7 N

| | |
|---|---|
| Pupils learned nothing. | Pupils learned much. |
| Information presented in an uninteresting manner. | Information developed with pupils in an interesting manner. |
| Facts presented without organization. | Facts presented in logical sequence. |
| Lesson unrelated to previous lessons or learnings. | Lesson built on previous understanding and interests. |
| No pupil participation. | Wide pupil participation and involvement. |

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24. The Teacher shows sensitivity to individual differences.

1 2 3 4 5 6 7 N

| | |
|---|---|
| Uniform presentation to entire class. | Evidence of grouping within the class. |
| Uniform assignments. | Groups or individual assignments. |
| Instruction based entirely on text book. | Wide use of reference materials with differential assignments. |
| No personal interest in the students. | Displays an interest in and has knowledge of students. |

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25. Teacher maintains good classroom discipline.

1 2 3 4 5 6 7 N

| | |
|---|---|
| Classroom out of control. | Teacher in control at all times. |
| Pupils antagonistic to teacher. | Pupil-Teacher rapport. |
| Learning reduced by classroom disorganization. | Classroom organization conducive to learning. |
| Chaos during recitation and work periods. | Student display good study habits and budget time wisely. |
| Pupils uncooperative. | Pupils cooperative. |

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26. Teacher helps the pupil develop efficient study habits.

1 2 3 4 5 6 7 N

| | |
|---|---|
| Makes no attempt to help pupils develop study skills. | Gives instruction and drill in study skill. |
| Gives little or no time for study during school day. | Plans for and allows time for pupil to study during class time. |
| Fails to supervise students during study time. | Gives careful supervision during study time. |

27. The Teacher provides a healthful and attractive classroom.

1 2 3 4 5 6 7 N

| | |
|---|---|
| No attention given to heat, light and ventilation. | Heat, light and ventilation well adjusted. |
| Furniture stationary. | Furniture adapted to correlate with activities. |
| Room dirty and unattractive. | Room clean and attractive. |
| Pupils take no interest in cleanliness of classroom. | Pupils assist in keeping room neat and attractive. |
| No evidence of pupil or teacher displays. | Teacher exhibits and pupil project work on display. |

28. Teacher makes use of a variety of instructional materials.

1 2 3 4 5 6 7 N

| | |
|---|---|
| No evidence of the use of audio-visual materials. | Evidence found that teacher makes proper use of films, exhibits, bulletin boards, radio, recorder, maps and field trips. |
| No evidence of the use of library materials in the instructional program. | Teacher plans for and uses library for individual students, small groups and entire class. |
| No evidence of teacher and pupil making learning aids. | Evidence of teacher and pupil ingenuity in the construction of learning aids. |

Summary Rating

Below is a scale to be used in giving the teacher you observed an over-all rating.

You are asked to think of each teacher as a whole individual and then rate him or her according to where you think he or she would fall on the scale for beginning teachers. This is your own over-all summary judgment and may be independent of individual items above.

Check appropriate number:

1. Really superior - already as effective as some of the best experienced teachers. 1._____
2. Very good - compares favorably with many experienced teachers. 2._____
3. Slightly above average for first year teacher. 3._____
4. About average for first year teacher. 4._____
5. Slightly below average for first year teacher. 5._____
6. Very poor - needs to show considerable improvement to remain in teaching. 6._____
7. Really inferior - probably should not remain in teaching. 7._____

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Name of Teacher_____ Grade or Subject_____

School:_____

Day_____ Date:_____ Hours:_____

Signed:_____

(Observer)

## APPENDIX B



School of Education University of Miami

STUDY OF BEGINNING TEACHERS

Subject: Request for Classroom Visitation

To :

1. The Study of Beginning Teachers is being conducted this year by the University of Miami with the cooperation and approval of the Dade County Schools.

2. Classroom observations of at least two hours by the observer listed below (who has a letter of introduction) with each of the teachers listed are needed.

3. Because of the nature of the Study, the following precautions should be observed:

a. The backgrounds, academic or otherwise, of the teachers being observed should not be discussed with the visitor by the principal or any one connected with the school.

b. The classroom visitor is not to discuss what has been observed in the classroom with the teacher, with the principal, or with anyone other than the supervisor of the Study.

c. Any results of the Study, as they may pertain to individual teachers, are in no way to become a part of the personnel records or considerations in the Dade County Schools.

4. We appreciate your help in participating in this classroom observation.

John R. Beery, Dean
School of Education

Classroom Observer:

Approved:

Wesley W. Matthews

Teachers to be Observed:

Wesley W. Matthews
Assistant Superintendent for
General Education
Dade County Public Schools

School of Education University of Miami

STUDY OF BEGINNING TEACHERS

The Study of Beginning Teachers is being conducted this year by the University of Miami with the cooperation and approval of the Monroe County Schools.

The classroom visitation part of the Study is now getting underway. This part of the Study will involve several visits to your class by different observers from the staff of the Study. We hope you will keep the following things in mind:

1. This is a research study. The visitors are not to discuss the results of the observation with you, your principal, or anyone in the County Schools.

2. Any results of the Study, as they may pertain to individual teachers, are in no way to become a part of the personnel records or considerations in the Monroe County Schools.

3. These visits are of a research rather than a supervisory nature. The validity of the Study will be increased to the extent that you can disregard the visitor and proceed with your regular instructional program.

You are a part of an important research study in education and we appreciate your cooperation.

Sincerely yours,

John R. Beery, Dean
School of Education

JRB:ehd

Approved:

Horace O'Bryant
Superintendent
Monroe County Schools

## APPENDIX C

## LIST OF OBSERVERS

*Professional Educators:*

William E. Fulmer, A.B., Catawba College; Ed.M., University of South Carolina. Associate Professor of Education and Director of Student Teaching, Appalachian State Teachers College.

Samuel Ersoff, B.Ed., Teachers College of Connecticut; A.M., Ed.D., Columbia. Professor of Education and Chairman of the Graduate Studies Committee, School of Education, University of Miami.

Leo Ivok, A.B., Clark University; Ed.M., Harvard University. Assistant Superintendent for Educational Functions, The Public Schools of Worcester, Massachusetts.

Onis Mount, B.L., Andrew College; A.B., Florida State College for Women; M.A., Columbia University. Formerly Supervisor of Elementary Education, Jacksonville, Florida.

Mark Murfin, B.S., Ball State Teachers College; M.S., Ed.D., Indiana. Professor of Elementary Education and Chairman, Department of Elementary Education, School of Education, University of Miami.

Forrest W. Murphy, A.B., Transylvania College; M.S., University of Illinois; Ed.D., Columbia University. Dean of the School of Education, University of Mississippi.

Ernest Nybakken, A.B., Concordia College; M.A., University of Minnesota. Chief of Bureau of Rural Services. Connecticut State Department of Education.

Forrest D. Swigart, B.S., Denison University; M.A., Ohio State University. Supervisor of Secondary Student Teaching, Heidelberg College.

Howard E. Thompson, B.S., Springfield College; M.A., Ohio State University; Ph.D., University of North Carolina. Principal of Wilkes Central High School, North Wilkesboro, North Carolina.

Willis H. Umberger, A.B., Yale College; M.A., Columbia University; Ph.D., Yale University. Chief of Bureau of Administration, Connecticut State Department of Education.

Fred Waters, A.B., Wabash College; M.A., North Carolina State College. Principal of Punta Gorda High School, Punta Gorda, Florida.

*Other Professionals:*

Melvin G. Hartley, LL.B., University of Miami. Practicing attorney.

Catherine S. Hille, B.S., University of Wisconsin; M.S., Smith College School for Social Work. Formerly social case worker and supervisor.

Calvin T. Kinsman, B.S., University of Miami; D.O., Kansas City College of Osteopathy and Surgery. Practicing physician.

Ruth O. Kruse, A.B., Woman's College, University of North Carolina; M.A., School of Social Service Administration, University of Chicago. Formerly caseworker, supervisor and administrator.

John F. Michel, B.S., United States Military Academy; M.S., Massachusetts Institute of Technology. Project Manager, Rader and Associates (engineering firm).

Edward W. Shea, B.S., University of Illinois; M.S., University of Illinois. Executive Secretary, Recreational Group Work Division, Dade County, Florida, Welfare Planning Council.

*General Observer:*

Ray Armstrong, A.B., University of North Carolina; M.S., University of North Carolina. Recently Superintendent of Goldsboro Graded Schools, Goldsboro, North Carolina.